AN ASSESSMENT OF THE IMPACT OF INTEGRATED LOGISTICS SYSTEM OF HEALTHCARE COMMODITIES ON CUSTOMER SATISFACTION IN TANZANIAN HEALTH SYSTEM: A CASE OF PRIMARY HEALTHCARE FACILITIES IN ILEMELA MUNICIPAL COUNCIL, MWANZA REGION

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A CASE OF PRIMARY HEALTHCARE FACILITIES IN ILEMELA MUNICIPAL COUNCIL, MWANZA REGION

By:

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A Dissertation Submitted to the School of Business in Partial Fulfilment of the Requirements for the Award of Master of Business Administration (Corporate Management) Degree of Mzumbe University

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CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a dissertation entitled **An Assessment of the Impact of Integrated Logistics System of Healthcare Commodities on Customer Satisfaction in Tanzanian Health System: A Case of Primary Healthcare Facilities in Ilemela Municipal Council, Mwanza Region,** in partial fulfilment of the requirements for award of the degree of Master of Business Administration (Corporate Management) of Mzumbe University.

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CHAIRMAN, SCHOOL OF BUSINESS

DECLARATION

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

Signature _____

Date _____

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The accomplishment of this Dissertation has largely been due to many individual's contributions. While appreciating for other's efforts (who will not be mentioned),
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LIST OF ABREVIATIONS AND ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
AMO	Assistant Medical Officer
CO	Clinical Officer
CSC	Client's Service Charter
DDH	Designated District Hospital
DED	District Executive Director
DH	District Hospital
DMO	District Medical Officer
EPI	Expanded Program on Immunization
HC	Health Centre
HCW	Health Care Worker
HF	Health Facility
HIV	Human Immunodeficiency Virus
ILS	Integrated Logistics System
IVD	Immunization and Vaccines Development
MC	Municipal Council
MDG	Millennium Development Goal
MoH&SW	Ministry of Health and Social Welfare
MSD	Medical Stores Department
PMORALG	Prime Minister's Office, Regional Administration and Local Governments
SDP	Service Delivery Point

ABSTRACT

Logistics services performance quality is critical in any supply chain. Two service delivery elements are marketing customer service and physical distribution service; these elements are used to measure the logistics services performance because of their logistics activities (Mentzer et al 2001). The purpose of this study was to assess the impact of integrated logistics system (ILS) of healthcare commodities on customer satisfaction in Tanzania Health system; a case of primary healthcare facilities in Ilemela District, Mwanza region. This study was guided by five objectives: (i) to assess the level of customer satisfaction of current logistics management of healthcare commodities in Ilemela District, Mwanza Region, (ii) to assess the extent to which integrated logistics system meets customers' (Dispensaries & Health Centres) requirements in Ilemela District of Mwanza region, (iii) to identify challenges associated with running of integrated logistics system in Ilemela District of Mwanza Region, (iv) to determine how information technology within integrated Logistics system affect customer order accuracy and order efficiency, discrepancy and flexibility and (v) to identify areas for improvement of integrated logistics system within Medical Store Department (MSD).

A descriptive research design which incorporated quantitative and qualitative approaches was adopted to investigate the research problem. A survey of 81 healthcare workers at healthcare facilities was carried out in Ilemela Municipal Council using self-administered questionnaire. In addition interviews were used with selected healthcare workers. The data was analyzed using descriptive statistics whereby SPSS package version 17.0 was used to analyse data.

The study revealed that customers (healthcare facilities) were unsatisfied with service performance of ILS within MSD on all its performance activities; ILS was noted to be also mostly inefficient in its distribution and delivery function to healthcare facilities. The study findings also showed that ILS was not meeting customers' requirement in the supply of medicines and medical supplies especially informing customers on new supplies and having full supply of needed medical commodities.

It also showed that the ILS faced many constraints / barriers in its distribution function, these included delivery delays due to constant shortage of vehicles, lack of industry electronic data interchange standards and imperfect integrated logistic information system. A list of strategies for the improvement of ILS was identified and these included introduction of priority orders, emergency order and special order delivery system, the outsourcing of the distribution functions to the private providers and interactive communication between MSD and its customers (healthcare facilities).

Further recommendations were made that; the ILS Section of MSD and heads of HF should create a platform that enables the two points to facilitate the communication and planning, using such collaboration system will help MSD to respond quickly to HF (customers) demands, it will also help in the cost reduction in logistics activities both for MSD and other supply agents. MSD through ILS section and HF should design strategies that make sure operations and distribution functions are delivered cohesively. Another recommendation was a need for immediate training of MSD operations and service delivery staff about customer care principles. This will ensure they understand their obligations, customers' (HF) needs and what efforts are needed to meet those customer requirements; this will also assist in improving community perception of their image on MSD.

The study also suggests areas for future research and these include but not limited to extending the same study to other districts / cities prior to generalization of its impact on specific ILS activities affecting customers' satisfaction.

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CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.0 Introduction

This research examined the impact of integrated logistics system of healthcare commodities on customer satisfaction in Tanzanian Health System – a case of primary healthcare facilities, in Ilemela Municipal Council (MC), Mwanza Region. This chapter is an introduction chapter to the study. The chapter begins with background to the study, followed by statement of research problem and research objectives. Finally, the chapter presents the significance and justification of the research, scope and delimitations of the study.

1.1 Background to the Study

Logistics was advanced from 1950s and now has become an important strategic tool both at national and global level for industries and public organizations. For industries, logistics management has been growing in various areas. It helps organizations to optimize the existing production, and distribution processes based on the same resources through management techniques for promoting efficiency and competitiveness of enterprises. The key element in a logistics and supply chain is transportation system which joins the separate activities and places.

The growth in information technology has led to dramatic rise in global markets and global supply chain. The globalization of supply chain has prompted many firms and organizations to develop logistics as part of their corporate strategy (McGinnis & Towill, 2000), which is key to effective supply chain used to make the logistics functions more efficient (Betz, 1997). In order to deliver products quickly and within minimum cost to the customers, many companies and organizations have either outsourced their logistics activities to logistic service providers or have in conjunction with actors in the supply chain developed integrated logistics system (Lieb and Millet, 2004).

Integrated Logistics System has become an important source of competitive advantage especially for distribution oriented companies. To fully justify the diversifying requirements of customers, many logistics service providers have to improve their service efficiency and this is usually done through continuous adoption of information or automated technology (Chiu, 2004; Liang, Corbitt & Peszynski, 2012). Indeed many studies have provided evidence that information systems within the logistics operations can enhance logistics competitiveness (Hair et al, 1998, Edwards, Peters & Sharma, 2001; Lewis and Talalayevsky, 2000; Patterson et al, 2003). The use of information systems within the logistics functions is a current trend in the supply chain management even in non-profit organizations (Patterson et al, 2003;Bosoma, 2012).The purpose of information systems is to help organizations to move from the previously labour intensive situations into knowledge intensive and how to make use of market intelligence to create knowledge and further take advantage of the knowledge to innovate products, services as well as strategies in order to promote competence of the organizations.

1.2 Statement of the Research Problem

Efficient and effective logistic system should deliver exceptional service to the organization with outstanding results to back it up. Hospitals (Healthcare Facilities) many times find themselves with shortage of medicines to meet the needs of their patients and their personal healthcare needs are not satisfied (Ovretveit, 1990). The management of a hospital/healthcare facility is responsible for the welfare and effectiveness of their service to the patients (Oladotum, 2013). Pharmaceutical products need to be available whenever needed. Prior literature has proven that the ability to understand what employees‟ want and their individual various needs is the first step in designing a strategy to engage them to create a hospital experience that results not just in great outcomes, but in a positive patient experience (Stanowski, 2009). It is important for a service oriented organization such as healthcare facilities to know and understand when, what and how its medical supplies will be available. However, in Tanzania there are media reports of deteriorating standards in healthcare services especially in public

hospitals plus frequent drug shortages. One of the cited reasons for this shortage in Tanzanian public healthcare facilities is inefficient Integrated Logistic System,
(The Guardian, 14 February 2012). There is a need to examine the effect of logistics to customers' satisfaction in Tanzanian healthcare facilities in the context of current and dynamic environment (Kwesigabo et al, 2012).

Several studies have been conducted on Integrated Logistics Systems management and quality of service delivered as well as its effect on customer satisfaction. For example, in Taiwan (Chiu, 1994), Ugandan public health commodities (Sangeeta, 2000), Australian transport system (Tseung, Yue & Taylor, 2005); Canadian Health Services (IT & Logistics, 2012); in Swedish food supply chain (Bosona, 2013) and Australian tourism industry (Liang, Corbitt & Peszynski, 2013). These studies have indicated that in today's environment, integrated logistics system is especially important for distribution oriented companies when they face heightened domestic and global competition and is also an important antecedent to customer satisfaction and loyalty, whereas information technology has significant effect for order accuracy and quality, and order efficiency, discrepancy and flexibility. They also indicated that the integration of logistics managements along with clustering, coordination, and optimization techniques, could reduce the transport distance, time, trips, and emission of products, and improve the vehicle capacity utilization.

Studies conducted in Tanzanian primary healthcare facilities only looked at issues of healthcare commodities such as an assessment on availability, affordability and prescribing patterns of essential medicines in public Healthcare facilities in Tanga region (Kishiwa, 2011). Pharmaceutical management and prescribing pattern of anti-malarial drugs in public primary healthcare facilities done in Dar es Salaam (Silumbe, 2011) and Drugs tracking (Euro Health Group, 2007). Recent studies conducted in Tanzania have focused on strategic plan of Medical Store Department (MSD, 2013). Furthermore, most

of the studies on ILS were at national multi-dimensional industry level and not in public sector type of organization as is in this study.

A research gap to understand how integrated logistics system of health care commodities impacts the customer satisfaction at healthcare facilities still exists. This research intended to fill this gap. Therefore, this study assessed the impact of Integrated Logistics System (ILS) of healthcare commodities on customer satisfaction in Tanzanian Health System – a case of primary healthcare facilities, in Ilemela Municipal Council, Mwanza Region.

1.3 Research Objectives

1.3.1 General Objective

The general objective of this research was to assess the impact of integrated logistics system of healthcare commodities on customer satisfaction in Tanzanian Health System; A case of primary health care facilities, in Ilemela Municipal Council, Mwanza Region.

1.3.2 Specific Objectives

The general objective was guided by the following specific objectives:

(i) To assess the level of customer satisfaction of current logistics management of healthcare commodities in Ilemela MC, Mwanza Region.

(ii) To assess the extent to which integrated logistics system meets customer (Dispensaries & Health Centres) requirements in Ilemela MC ,Mwanza region.

(iii) To identify challenges associated with running of integrated logistics system in Ilemela MC, Mwanza Region,

(iv) To determine how information technology used in Integrated Logistics System affect customer order accuracy and order efficiency, discrepancy and flexibility.

(v) To identify areas for improvement on Integrated Logistics System within Medical Store Department (MSD)

1.4 Research Questions

The research study was guided by the following research questions:

(i) What is the level of customer satisfaction of current logistics system management of health care commodities in Ilemela Municipal Council, Mwanza Region?

(ii) To what extent does integrated logistics system meet customer (dispensaries & health centre) requirements of Ilemela Municipal Council, Mwanza region?

(iii) What are the challenges associated with the running of integrated logistics system in Ilemela Municipal Council, Mwanza Region?

(iv) How does the information technology in the integrated Logistics system affect customer order accuracy, efficiency, discrepancy and flexibility?

(v) What are the suggestions for improvement of integrated logistics system within Medical Store Department?

1.5 Justification and Significance of the Study

This research relating to the impact of integrated logistics system of healthcare commodities on customer satisfaction in Tanzanian Health System with reference to primary healthcare facilities, in Ilemela MC, Mwanza Region, was worthy of academic study on the following grounds:

First, primary healthcare facilities provide essential health care services closer to the community. They are also a big source of employment of graduates from various institutions as well as generate skilful health care workers through training different cadres (MoHSW-PHSDP, 2008).

Secondly, workers (Doctors, Pharmacist and Nurses) play a very significant role in the provision of primary healthcare services and it is argued that the presence of motivation factors in the work place influences employee's job performance and productivity (Witte, 2007). As it was expected the study unveiled the effects of motivation which are

used by heads of health care facilities and Ministry of Health and Social Welfare and how workers perceive motivational tools.

The research was timely given the recent worsening of healthcare services in Tanzania health system (Guardian 14th February, 2012). The findings from this study have given a better understanding on how integrated logistics system influences customer satisfaction at primary healthcare facilities and overall ILS performance in healthcare facilities in Ilemela Municipal Council. It also provided basis for policy improvement regarding ILS and it interpretation within healthcare facilities especially in lower level.

The information gathered through this research can be used by healthcare stakeholders and decision makers to plan for the future intervention strategies to improve healthcare workers motivation to perform tasks well and this will contribute to the improvement of quality of health care services at primary health care facilities. Furthermore, understanding ILS and challenges it faces will further assist in accelerating the long-term efforts of attaining Millennium Development Goals (MDGs) of universal coverage and delivery of primary healthcare services to the needy population more effectively and with greater coverage in Tanzania.

Fourth, the findings of this research has added to the body of knowledge in the field of ILS in primary health care services, especially public health facilities particularly on suitability and adequacy of ILS at the National level.

1.6 Limitations of the Study

Some of the factors that tended to limit the research processes like data collection and so on were expected. Their magnitude of impact depended on the scope of operation in the research. These factors were divided into two groups; internal factors and external factors, Most of these factors were well managed as they were expected. Some of them included; financial aspects, time constraints (Internal), and availability of data and free will of the respondents (External).

The free will of the respondents was considered to be the oddest limitation of this research, but the researcher thought about it early enough such that when it happened there was a room to use the alternatives and set enough time to make follow up and sometimes to spend a lot of time at one HF waiting the respondents who had promised to fill the questionnaire. Persistence, constant following up and allowing enough time made more of the respondents to respond, the researcher made two teams of research assistants to do the follow up this resulted to receiving 100% of response. Some of the respondents had their opinion in responding to the questions, in this case the researcher's knowledge, comments and opinion was considered. The time was considered to be serious challenge whereas the adjustment was made to allow enough time to the teams to make follow up and submit the data as they were collected, the last but not list of challenge was the understanding of the questions by respondents which needed a close observation and sometimes a physical presence to interpret the questions.

1.7 Scope of the Study

The study examined how integrated logistics system of healthcare commodities impact performance of primary health facilities in Ilemela MC, Mwanza Region. The study focused only on Government healthcare facilities in Ilemela MC of Mwanza Region and also assessed the use of Information Technology (IT) in the distribution systems which is instrumental in improving logistics efficiency and supporting improved customer service levels.

The geographical area for the study was mostly in Ilemela MC which has many primary health care facilities and has become publicly known for their poor health care services provision (performance) in the Lake Zone.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The purpose of this chapter is to lay ground for the study by reviewing concepts and theories in logistics, integrated logistics system and customer satisfaction. Finally, it presents reviews of recent studies conducted on integrated logistics system, and the conceptual framework for the research study.

2.1 Theoretical Literature Review

2.1.1 Definition of Key Concept and Terms

Daskin (1985), defines logistics as "the design and operation of the physical, managerial, and informational systems needed to allow goods to overcome time and space" It describes the entire process of materials and products moving into, through and out of firm (Johnson and Wood's definition cited in Tilanus 1997). Another definition promulgated by the Council of Logistics Management (1991) is: the process of planning, implementing, and controlling the efficient, cost-effective storage and flow of raw materials, in-process inventory, finished goods and related information from point of origin to point of consumption for the purpose of conforming to customer requirements.

The commonality of the these definitions is that logistics is a process of moving and handling goods and materials, from the beginning to the end of the production, sale process and waste disposal, to satisfy customers and add business competitiveness. It is 'the process of anticipating customer needs and wants; acquiring the capital, materials, people, technologies, and information necessary to meet those needs and wants; optimizing the goods- or service-producing network to fulfil customer requests; and utilizing the network to fulfil customer requests in a timely way' (Tilanus, 1997). Simply to say, 'logistics is customer-oriented operation management' and in that ways is the process of planning, implementing, and controlling the efficient, effective flow and

storage of goods, services, and related information from point of origin to point of consumption for the purpose of conforming to customer requirements.

2.1.2 Integrated Logistics System

Integrated logistics system (ILS) is defined as " the process of anticipating customer needs and wants; acquiring the capital, materials, people, technologies and information necessary to meet those needs and wants; optimizing the goods-or-service-producing a network to fulfill customer requests; and utilizing the network to fulfill customer request in a timely way." That is, it is a system management of the entire logistic chain as a single entry instead of separate management of individual logistical functions (Liang, Corbitt & Peszynski, 2013).

Integrated logistic system (ILS) is system where, as much as possible, the separate steps of the logistics cycle are carried out for all products within one system; procurement, storage, and transportation are coordinated through a single office. ILS is vital not only to manufacturing and assembly industries, which are goods-oriented, but also to retailing, transport and other distribution or service-oriented industries such as Medical Store Department (MSD), whose tasks is to undertake the act of planning, organizing and managing activities for the distribution of health commodities from the store to the Health Centres and dispensaries as its customers. In the case of MSD, integrated logistic system is viewed as the distribution of health commodities from the MSD warehouses to primary healthcare facilities (customers) and flow of information from the health facilities to MSD (flow of commodities and information).

2.1.3 Integrated Logistics System of MSD

The Integrated Logistics System (ILS) within Medical Store Department (MSD) is a system for managing various categories of medical supplies, using a single set of procedures. For the Ministry of Health and Social Welfare (MOH&SW) the ILS is a type of indent system where Dispensaries, Health Centers, and Hospitals order quantities of each supply according to their unique needs and within their budget. It is a process

whereby the Dispensaries and Health Centre make request for the drugs and other health care commodities through report and request(R& R) approach.

In order to be successful, the ILS must fulfill the Six Rights (6R) of supply chain management. The system, and its staff, must ensure that: the Right goods in the Right Quantity of the Right Quality, is available at the Right Place, at the Right Time and for the Right Cost.

In simple terms, facility staff determines needs of the customers (Patients) and make orders for the healthcare facility which contain drugs and other healthcare commodities. All supplies in the ILS are managed using the same basic systems and procedures. Order quantities are based on the quantities of supplies that are used to serve clients and the quantities of stock held by the facility at the time the order is placed. The orders are sent to the Medical Store Department (the supplier). The supplier packs the supplies and delivers them to the districts or directly to hospitals. The districts then distribute the supplies to health centers and dispensaries.

The documents used by MSD to facilitate the parking and distribution within ILS at Medical Store Department warehouses are: Report & Request (R&R), Quotation, Sales order, Picking sheet, Sales invoice; Material requisition and Transfers orders.

2.1.4 Supply Chain Management

Before defining Supply Chain Managements (SCM), it is necessary to define the supply chain system itself. A supply chain system consists of the series of activities and organisations that materials move through on their journey from initial suppliers to final customers (Waters, 2003). Consequently SCM is the strategic management of all the traditional business functions that are involved in any flows, upstream or downstream, across any aspect of the supply chain system (Mentzer, 2004). Actually, SCM is the active management of activities and relationships within supply chains, in order to maximise the value for customer and to achieve a sustainable competitive advantage. It is a conscious effort on behalf of a company or a group of companies to develop and start supply chains in the most effective and efficient ways (Bozarth & Handfield, 2006). There is also a process view of SCM. According to Lambert, SCM is the integration of

key business processes from end-user through original suppliers that provides products, services, and information that add value for customers and other stakeholders (Lambert et al., 2008). Therefore, marketing channel today is seen more broadly: Channel: A group of businesses that take title to products or facilitate exchange during the marketing process from the original manufacturer to the final buyer. Effective SCM requires an understanding of the needs of each customer and segment and the correct channel to reach them, (Ayers & Odegaard, 2008).

2.1.5 The Use of Information Technology in SCM

Information technologies are a precondition for the development of information systems in a supply chain, i.e. in distribution or marketing channels. Information technologies can play various roles within a supply chain (Rushton, Croucher, & Baker, 2006):

- They facilitate managerial decision making
- They help to monitor and control operations
- They enable the initiation of activities and monitoring of process related information.
- They allow the creation of simulation system
- They allow data storing and processing
- They allow data analysis needed for creating useful information,
- They facilitate the communication among individuals, companies and devices,
- They allow the development of information systems.

Importance of IT in a distribution channel is growing. Therefore, it is necessary to underline its specific role in SCM:

- Simplification of distribution systems,
- The increase in the number of channel types,
- The increase in the market size,
- Wider use of e-commerce,
- Internationalisation and easier access to global markets and change in distribution channels.

Information technologies are used in three broad areas, according to their areas of application and technological systems in their hierarchical structures, so there are (Ross, 2011):

a) The most complex technological business systems, such as ERP systems (*Enterprise Resource Planning*), which were designed to cover and connect the whole company on the software level; As used in Tanzania by MSD.
b) Targeted technological solutions (the lower level of technological solutions that facilitate optimising certain business functions or enhance visibility along channels), such as: *warehouse management system* – WMS, *transport management system* – TMS, or *advanced planning system* – APS;
c) Technological tools for executive solutions: *Electronic Data Interchange* – EDI, the Internet or RFID (*Radio Frequency Identification*).

According to its purpose, IT in SCM consists of (Shi & Chan, 2007):

a) Telecommunication technologies;
b) Networking technologies,
c) Data processing technologies.

Integration is the main goal of IT use in SCM, in order to achieve various positive effects that integration makes possible, based on more accurate, faster and comprehensive information sharing, for instance, better demand forecasts based on precise information, the effects of economies of scale, significant savings by avoiding multiple unnecessary operations, and the increase in reaction time to expected and unexpected demands, thus achieving better service for the final buyer (Customer).

2.1.6 Understanding SCM Functions of MSD

2.1.6.1 Background of MSD

Medical Stored Department (MSD) is an autonomous department of the Ministry of Health and Social Welfare established by the Act of parliament number 13 of 1993 and started operating in 1994 with the express objective of furnishing to the nation good quality medicines and medical equipment at affordable prices, made available through

approved government and nongovernment agencies throughout Tanzania. MSD is a not for profit government institution operating on a commercial basis to ensure its own sustainability - without drawing upon outside resources The main functions of MSD are procurement, storage and distribution of quality healthcare products throughout the nation . The department carries out other support functions that are connected or incidental to the performance of the main function. MSD also provides logistics functions to vertical programs of the Ministry of Health and Social Welfare.

2.1.6.2 Relevance of functions of MSD

MSD services touch every person, company, Organizations and the Local and Central Governments. Every activity needs human resources. However, human beings can carry out activities only if they are healthy. A health body and mind are assets of every individual person, family, society and the nation at large. In this regard, a health population is very important for social, political, technological and economic development of the country. Poor healthy affects the individual faced with an illness, the family, society and the nation at large. Illness affects family activities and funds because of taking care of the sick. The society especially neighbours and friends are also involved in giving comfort and taking care of the sick. Occurrence of endemic diseases leads to shift of priorities of the society and the local and central Governments. Government revenue is also affected because economic activities, hence the tax base are affected. The effect of illness can be reduced only if good quality medicines and medical equipment are available and accessible at affordable prices. Therefore, the decision of the Government to establish, support and work in partnership with MSD is appropriate and creates value for money for the good of this nation.

MSD has a vision to provide quality medical services closer to people. While its mission been to make available at all times essential medicines and medical supplies of acceptable quality at cost-effective prices to the population through government and approved non-government and private health facilities.

The overall objective of MSD is to develop, maintain and manage an efficient and cost-effective system of procurement, storage and distribution of approved essential

medicines and other medical supplies required for use within the country at all times. The vision, mission and objectives of MSD can be regarded as the commitment to serving the public and ensuring that the Tanzanian societies live in good health.

2.2 Customer Satisfaction

2.2.1 Definition of Customer Satisfaction

Customer satisfaction is defined as a customer's overall evaluation of the performance of an offering to date. This overall satisfaction has strong positive effect on customer loyalty intentions across a wide range of product and service categories (Gustafsson, 2005). Customer satisfaction is a collective outcome of perception, evaluation, and psychological reaction to the consumption expectation with a product or services (Yi, 1990).

According to Pizam and Ellis (1999), consumer satisfaction is a psychological state that involves the feeling of wellbeing and pleasure that results when obtaining what is expected from a product or a service. Brady and Robertson (2001) and Kotler (2008, p.36), conceptualize customer satisfaction as an individual's feeling of pleasure or disappointment resulting from comparing a product's perceived performance or outcome to his or her expectation. Expectations are what the customer wants or requires from the product or service and perceived performance is the perception of the customer about the product or service before consumption. It is therefore an evaluation of the product or service after using it.

Regardless of the perspective and level of satisfaction taken, in general, customer satisfaction is actually how customer evaluates the ongoing performance (Gustafsson, Johnson and Roos, 2005). According to Kim, Park and Jeong (2004), customer satisfaction is customer's reaction to the state of satisfaction, and customer's judgment of satisfaction level. This is the understanding that guided this research.

MSD has process of ensuring the customer satisfaction at all level stipulated as Client Service Charter (CSC) which aims at raising awareness of the quality of the products and services that MSD offers, rights and responsibilities of MSD clients and how to provide feedback to complaints where services are not commensurate with their expectations (Client's Service Charter, 2013).

2.2.2 Importance of Customer Satisfaction

Customer satisfaction is very important in today's business world. According to Deng et al. (2009), the ability of a service provider to create high degree of satisfaction is crucial for product differentiation and developing strong relationship with customers. Customer satisfaction makes the customers loyal to an organization. Furthermore, customer satisfaction is even critical in service sector such as education banking and healthcare industry where service is the core product is gaining increasingly more importance in the competitive formula of both firms and countries. Previous researchers have found that satisfaction of the customers can help the brands to build long and profitable relationships with their customers (Eshghi, Haughton and Topi, 2007).

Regardless of whether these organizations provide goods or services, they should recognize that satisfied customers are the key to their success (Smith, 2007). This is because customer satisfaction is important for organization both for profit and not for profit organizations. Organization have to focus on achieving 100 percent customer satisfaction and embed this priority throughout the organization from top to bottom with a solid framework of policies, practices and information. Achieving high levels of customer satisfaction requires that organizations continually monitor and examine the experiences, opinions, and suggestions of their customers and people who are potential customers. Improving service quality to meet customers' standards is an ongoing part of doing business to meet overall business goal of profit making. In this way, customers and their satisfaction drive the market and the organization (Paul, 2005).

Customer Satisfaction is important in the Public Sector. The absence of a profit motive does not mean that customer satisfaction is unimportant in the public and non-profit world. Canadian researchers found that service satisfaction is a strong driver of citizen trust and confidence in public institutions. They found that satisfaction of public sector customers / clients both improved employee engagements. (Heintzman and Marson, 2006). Here, customer satisfaction involves an orientation that says, "take care with all parts of the process that develops a good or service for the ultimate customer (Kotler, 2008).

That is, the process orientation allows an organization to look at what the contributions of all departments are in satisfying the multiple customers in the supply chain or delivery chain in the case of MSD. In essence the process orientation forces an organization to examine the internal processes that contribute to the whole and these ought to be examined and documented, the managers can then identify the internal customers of each process and say to each worker "you must add value at each step" and "you must improve the quality of what you do as seen by your customers."(Heintzmanand Marson, 2006).

2.2.3 Service Performance for Customer Satisfaction

Customer satisfaction has become an important performance measurement tool for many organizations, and public healthcare organizations are no exception **(**Berrio & Henderson, 1998). In business world, customer satisfaction is measured in terms of sales volume, profits, repeat business and organization image. That is, companies understand how to over deliver on critical customer satisfaction elements to drive high sales from these customers (Epetimehin, 2011).

The performance measurement in public sector organizations such as healthcare are different since the overriding motive is not profit but rather providing a service in a cost effective and efficient manner. The service performance are an important antecedent to customer satisfaction and these include efficiency and effectiveness of service delivery, provision of customer feedback as well as informed communication (Weinstern 2002; Bennett and Rundle-Thielle, 2004). In case of integrated logistics system, the variables are related to customer satisfaction include timely delivery, order accuracy, order efficiency, quick response to rush order and enhanced communication with customers (Liang, Corbitt & Peszynski, 2012).

2.2.4 Customers in Public Agency

Thinking in terms of public agency “customers” is a relatively recent phenomenon, so perhaps it is not surprising that there is much confusion about who the customers are. In business world, a customer is any party that receives or consumes products (goods or services) and has the ability to choose between different products and suppliers. In

public sector organization, the customer is quite different from profit making organization. There are two groups of customers, primary and secondary customers.

Osborne and Plastrik (1997), maintain that the "primary customer is the individual or group" the organization's works with. Often "primarily designed to help" the public at large. For example, they consider students and their parents to be the primary school customers. Public agencies also may have secondary customers, groups that benefit from the work, but less directly contacting than primary customers. For healthcare facilities, these may be employers who will eventually hire doctors, Pharmacists and nurses, patients and the community at large. In addition, there are many stakeholders who have an interest in the public organization's performance but are not customers. These may include suppliers of health commodities, Doctors, Pharmacists, Nursesand their professional organizations, other healthcare employees, private physicians, businesses that construct and repair healthcare facilities, and many others. Thus, in the case of ILS within MSD, we shall deal with the primary customers who are Dispensaries, Health Centres, Hospitals, Government organs and Community at large.

To improve customer satisfaction, public sector organizations must first clearly identify their primary customers. They also may need to consider the role and impact of secondary customers and stakeholders, since these groups have considerable influence within the public domain. To obtain their cooperation, these groups may need to be convinced that they too will benefit, which may require special incentives or sanctions.

2.3 Empirical Literature Review

Several researchers have examined Integrated Logistics System in various industries and in different countries and its impact on customer satisfaction and overall system performance. This section presents a review on some of the most recent empirical studies.

Chiu (1994), conducted a study on the Integrated Logistics Systems management in Taiwan. The main purpose was to assess ILS performance and examine channels in the ILS between manufactures, retailers, transport and warehouse operation using a

questionnaire. The results of the study indicated that the Integrated Logistics System presented in this study involved the system's major components, their relationships and operating philosophies. Since most companies have a small portion of the whole supply chain, linking closely with trading partners to achieve synergy is essential. In addition, working with channel partners helps them to overcome common logistics management barriers and provides them with satisfactory logistics' services. The findings of the study revealed that, the use of IT in distribution systems is instrumental in improving logistic efficiency and supporting improved customer service levels. To improve service levels further, integration of information technology and logistics management is becoming increasingly important. Such integrated systems enable retailers to save on labour, increase accuracy, to quicken services, and cut costs.

The study highlighted that the keys to success lie in good logistics system's planning, well-designed distribution organization, prudent selection of allied companies, close relationships with trading partners, good logistics investment analysis, logistics management barriers elimination, top management commitment and continuous improvement in logistics.

Liang, Corbitt & Peszynski (2012), conducted a study on impacts of logistics service performance through it overall tourist satisfaction and loyalty in Tourism Industry in Australia. They used conceptual model with six hypotheses to depict the relationships amongst tourism suppliers' service quality, logistics service performance, perceived service value, tourists' satisfaction and loyalty. It surveyed sample of a 425 channel members from international tourists in Taipei, Taiwan. The results indicated that logistics service performance is an important antecedent to tourist satisfaction and loyalty, whereas information technology has significant effect on order accuracy and quality, and order efficiency, discrepancy and flexibility which are under the construct of logistics service performance.

Bosona (2013), conducted a research on integration of logistics network in local food supply chains, in Uppsala, Sweden. The study revealed that the integrated logistics network has implications for improving food traceability, logistics efficiency, food quality and safety, the potential marketing channels, economic benefits, and competitiveness of suppliers; and for attenuating negative environmental impact and promoting sustainable local food systems.

Distribution is one of the four marketing mix referred to as the 4P's, others being the price, promotion, and product. It is defined as a set of activities involved in the process of making a product or service available for use or consumption by the consumer or business user (Kotler and Armstrong, 2006).

These sets of activities necessary to transfer the ownership of goods and to move from the point of production to the point of consumption is called Marketing Channel and it consists all the institutions and all the marketing activities in the marketing process (Kotler and Armstrong, 2006). The institutions within the marketing channel are called intermediaries.

A distribution channel is a chain of intermediaries; each passing the product down the chain to the next organization, before it finally reaches the consumer or end user. Each of the elements in the distribution channel have their own specific needs, which the producer must take into account along with those of the all-important end user (Dent, 2008).Thus the distribution channels, which move products and services from businesses to consumers and to other businesses consist of a set of interdependent organizations—such as wholesalers, retailers, and sales agents—involved in making a product or service available for use or consumption.

Distribution channels are just one component of the overall concept of distribution networks, which are the real, tangible systems of interconnected sources and destinations through which products pass on their way to final consumers.

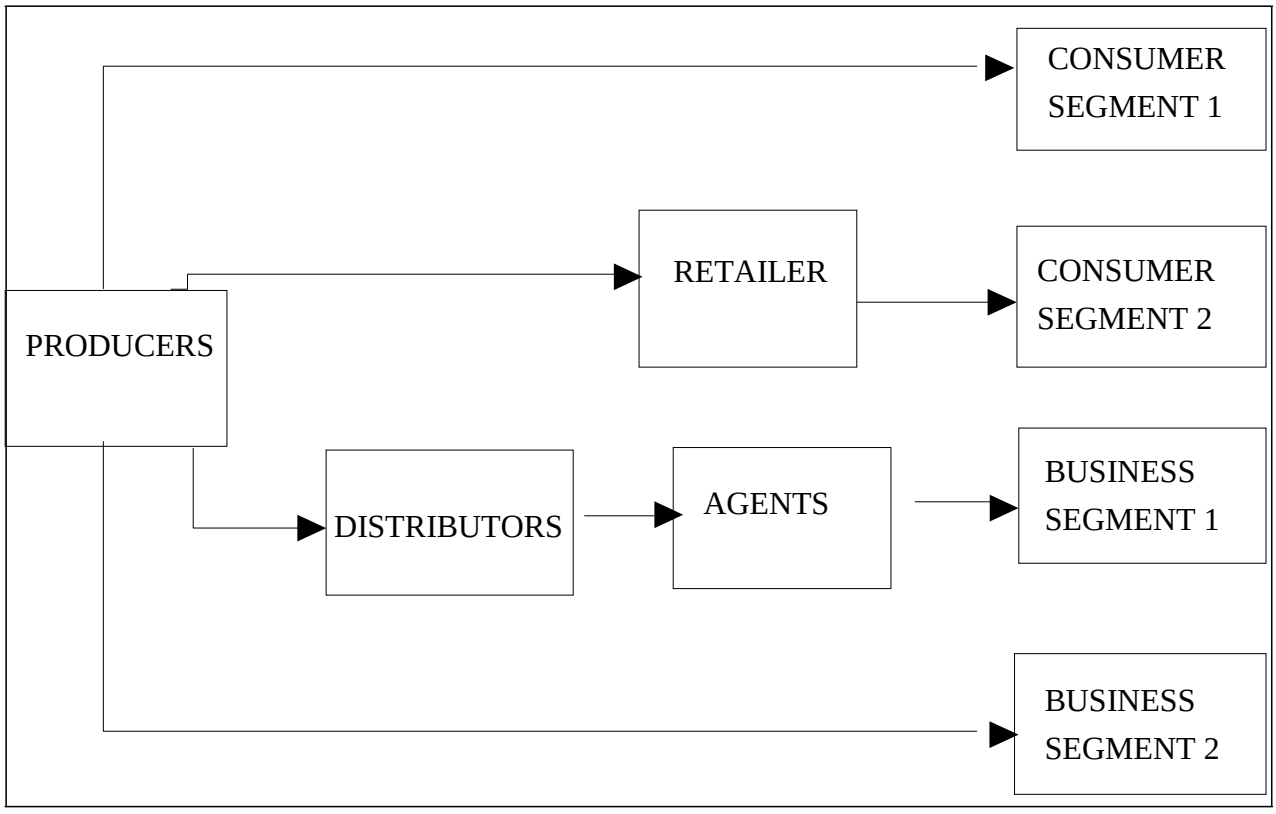
Goods and service providers always endeavour to have their goods and services available in the right quantities and at the right locations, when customers need them.

The ideal exposure of goods and services may be intensive, selective or exclusive (Perrenault and Mc Carthy, 2006). Intensive distribution is selling a product through all responsible and possible wholesales and / or retailers who will stock or sell the product whereas selective distribution is selling through middlemen who will give the product a special attention. On the other hand, exclusive distribution is selling through only one middleman in a particular geographic area.

The nature of the distribution of pharmaceuticals in Tanzania and many other countries takes the nature of selective distribution and some elements of exclusivity in the public sector.

The private pharmaceutical distributors are selective because they are registered pharmaceutical dealers who give a particular attention to the medicines they supply. The public pharmaceutical service distribution system is exclusive as the government distributes its medicines through only one distributor, the Medical Stores Department (MSD). The government chose this distribution system in order to make available at all times essential drugs and medical supplies of acceptable quality at cost-effective prices to the population. Kotler et al, (2006) classify distribution channels as consumer marketing channels and Business marketing channels, elaborated by the help of the figure below;

Figure 2.1 Consumer and Business Marketing Channels



Source: Kotler et al, (2006): **Principles of Marketing**,

Figure 2.1 is the Consumer marketing channels and the Business marketing channels combined. Consumer marketing channels usually facilitate the movement of goods and services from the point of production to the final consumers, whereas Business marketing channels are those channels involved in moving the goods and services to individual businesses. In the process, these marketing channels link producers to buyers, perform sales, advertising and promotion, they determine the pricing strategy, and finally determine the product strategy such as branding. In the pharmaceutical industry, these marketing channels have the same relevance.

The term "distribution channels" can be replaced by the term "marketing channel". "Marketing channel" as a more complex term has been used in the USA since the 1970s,

because the intermediaries include not only those who participate in the physical flow of a product from the manufacturer to the end user, but also those that have a role in the transfer of product ownership, as well as other intermediary institutions that participate in the value distribution from production to consumption (Tipurić, 1993, 15-16). Therefore, it is assumed that there are three types of marketing channels (Kotler & Keller, 2008): communication channels, distribution channels and service channels. Distribution or marketing channels are systems of mutually dependent organisations included in the process of making goods or services available for use or consumption. Moreover, a marketing channel is "the external contractual organization that management operates to achieve its distribution objectives" (Rosenbloom, 2004).

Since different participants in distribution channels can be connected by joining of functions, different types of system called integrated channels of distribution have been developed. In fact, they are the reality, while non – integrated types in which every single participant acts individually and competitively are currently only theoretical models. This is the development process from the simple to the complex distribution channel.

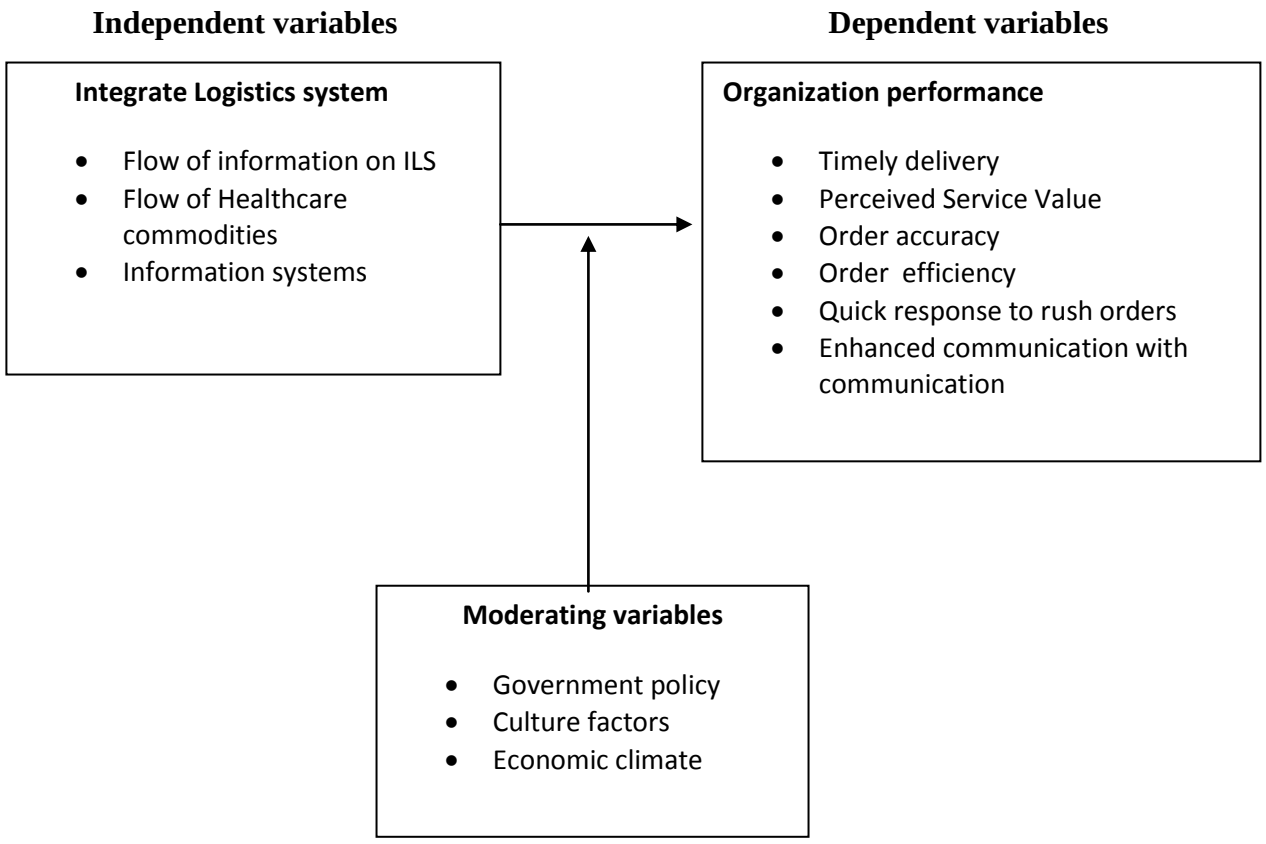
2.4 Research Gap

Most of the studies discussed above showed that there was a myriad of motivating factors which can be put into categories. First are intrinsic factors which include good wages, good working conditions, job security, loyalty to employees, appreciation for job well done, promotion, career development, involving employees into decision making, interpersonal relationship and friendly social gestures, leadership, workplace environment, interesting work, tangibles items such as awards, certificates and gifts, and financial incentives such as bonuses. The second category is extrinsic factors. However, most of these studies were conducted outside Tanzania. Furthermore, they were undertaken in overseas countries and no study has been conducted in Tanzania. This study therefore, examined the effects of intrinsic and extrinsic factors of motivation on

employees' performance in Tanzanian public primary health care facilities in Ilemela MC, Mwanza Region.

2.5 Conceptual framework

Figure 2.2 Conceptual frameworks for the relationship between Independent variable and Dependent variable as well as intervening variables.



Source: Researcher's construction, 2014

The independent variables are conceptualized as the components and function of integrated logistics system and these include flow of healthcare commodities and flow of information on the distribution of health care commodities. In contrast, the dependent variables are conceptualized to be variables that are related to customer satisfaction which include timely delivery, order accuracy, order efficiency, quick response to rush order and enhanced communication with customers (Liang, Corbitt & Peszynski, 2012).

The independent variables were noted in literature to have an impact on dependent variables (Chiu 1994; Liang, Corbitt & Peszynski, 2012; Bosona, 2013). Other factors such as government policy, economic climate and cultural factors of employees collectively known as moderating variables have been taken into consideration because of their moderating effect on the dependent variables.

CHAPTER THREE

RESEARCH METHODOLOGY AND PROCEDURES

3.0 Introduction

The previous chapter reviewed the relevant literature on the study topic. This chapter focuses on the methodology which was used in this study to address the research objectives. It explains the research design, geographical areas of study, target population, sample size and sample sampling techniques, and data collection methods and data analysis. Furthermore, this chapter discusses reliability and validity of data and finally the ethical considerations in relation to this research.

3.1 Research Design

Research design is the plan and structure of investigation so conceived in advance so as to obtain answers to research questions (Cooper and Schindler, 2001). That is, a research design is a plan for selecting the sources and types of information to answer the research questions (Cooper and Emory, 1993; Creswel, 2002). Thus, the importance of having a research design is to make sure that all aspects of the study are addressed and executed in the correct sequence (Daniel, Gates and Flick, 2000).

There are three possible research designs: exploratory, descriptive and causal research designs (Easwaran and Singh, 2010). This research adopted a descriptive research design incorporating both quantitative and qualitative approaches. Descriptive research provides a tool for describing a phenomenon (population characteristics), collection of statistical observations and information (Frankfort & Nachmias, 1990). Furthermore, this study adopted a descriptive research design, which according to Cooper and Schindler (2003), involves surveying people and recording their responses for analysis.

The quantitative approach, utilizing questionnaire was used to sample the population widely. This was complimented by qualitative approach using interview. Furthermore, the use combines both quantitative and qualitative approaches in social research as is the case in this study has been recommended by several researchers. For example, Laws (2003), argued that "participatory methods are clearly of great value for development

work and it would be quite straight forward to advocate for these and explain how to use them"

3.2 Study Area

The study was conducted in Ilemela Municipal Council of Mwanza region which is located in Lake Zone. Mwanza region has a population of 2.8 million (2012 census) and is composed of seven districts (Ukerewe, Magu, Sengerema, Misungwi, Ngudu, Nyamagana, Ilemela) and covers an area of 19,592km^2. Mwanza city has a total population of approximately 876,646 (URT Census 2012).

The study area was selected for several reasons. First, Ilemela Municipal Council which is part of Mwanza City has the highest number of health care facilities in Mwanza. Second, the Ilemela Municipal Council is close to the researcher's work place and easy to access the required research. Furthermore, the district was selected due to larger culture of workers in the health care facilities which represent most ethnic groups in Tanzania. The main economic activities in the district are wholesale &retail trade, banking services, hotels and restaurants, education, fishing and manufacturing.

3.3 Target Population

A population may be a group of people, organizations, houses, records, legislators, and so on (Nachmias and Nachmias, 1981). The specific nature of the population depends on the purpose of investigation (Finn et al. 2000).

3.4 Sampling Techniques and Sample Size

3.4.1 Sampling Techniques

In this case study the non – probability sampling technique was used as the whole population was involved in the study

3.4.2 Sample Size

Sampling is the process of selecting respondents to be involved in the study from the studied population. In addition it can be defined as the process of obtaining information on entire population by examining only a part of it (Kothari, 2004). Sample size should be statistically completed by determiner required level of accuracy (Krishnaswami 2003). Bartlet et al (2001), indicates that for a population which is less than 100 units, as is in this case, the researcher has to include the entire population.

The target population for this study included two categories of respondents.
The first category was non-managerial healthcare workers that have been employed with health care facilities for at least one year and are involved in the managements of health commodities. These are 15 non-managerial doctors and 40 nurses, the study involved this category of people because they are the respondents that are involved in provision of health care services to patients in public health care facilities and have information regarding health care commodities.

Another category was the management at the Healthcare facilities which comprised of 12 doctors in managerial positions at each healthcare facility. The population in this category was included because; first, they are the ones that place orders for healthcare facilities and are in constant communication with MSD and are the most affected by integrated logistics system which performs the distribution function. The two categories at health care facilities are the primary users of the ILS services within MSD in Ilemela Municipal Council and are in position to assess whether the activities performed through ILS meet their requirements. Details of each category is given in table 3.1

Table 3.1 Distribution of the Expected Sample Size

No	Categories of Population	Size/Number	Sample size
1	12 Public Primary Healthcare facilities – Nurses	42	42
2	12 Public Primary Healthcare facilities – Doctors in Management Positions	12	12
3	Non-Managerial Doctors	15	15
4	District Health Inspectors	2	2
	Total	**81**	**81**

Source: Researcher's Construction, 2014

3.5 Sources of Data and Data Collection Instruments

3.5.1 Data Sources

Data are facts and other relevant materials, past and present which serve as basis for the study and analysis (Krishnaswami and Ranagnatham, 2006). In social research such as this study, the data needed may be broadly classified as primary and secondary data.

(i) Primary Data

Kothari (2008), defines primary data as those data collected afresh and for the first time and mostly are original in character. In this study, various research instruments was used to collect primary data and these included self-administered questionnaires and interview. The primary data will be based on the research objectives of the study.

(ii) Secondary Data

Secondary data is the data that is already in existence and found in published reports, books and internet (Saunders et al, 2003), and may be used by researchers for their studies (Krishnaswami and Ranagnatham, 2006). In this research, the secondary data

will be collected from reviewing existing data from reports at healthcare facilities in Ilemela Municipal Council.

3.6 Data Collection Methods

This study used a combination of self-administered questionnaires and interview as a means of primary data collection. Each is described below:

(i) Interviews

The first primary data collection instrument is semi-structured in-depth interview and this was used to collect qualitative data (Kothari, 2008). Interview method of collecting data involved researcher posing questions as oral-verbal stimuli and replies were obtained from the participants in terms of oral-verbal response (Kothari, 2008).

The guiding questions on each research objective were prepared in advance as indicated in the interview protocol (Appendix I). The method was applied to only selected few employees and management and this gave the researcher an opportunity to explore information about the research questions to compliment and collaborate data from questionnaires and interview.

(ii) Questionnaires

The second primary data collection method used in this research was a questionnaire (Saunders et al, 2003). The researcher designed questionnaires for employees and management of healthcare facilities in Ilemela Municipal Council (Appendix II) which focused on respondents' profile as well as how ILS meets requirements in the distribution of healthcare commodities. The aim of using this method was to get broad-based views from the respondents on various aspects of ILS service performance. The questionnaire included close-ended questions with pre-determined answers and a few open ended questions. The questionnaire also used a 5-point Lirket rating scale to secure the degree of the presence of the variables of interest in the study population. In cases of open ended questions the respondents were encouraged to express themselves more freely as well as to provide any other information as they saw it relevant to the study topic.

The questionnaire was first pre-tested with experts and few respondents for clarity and completeness and their comments were incorporated in the final version. Furthermore, given that some of the respondents have limited English comprehension and to increase more understandability, a Kiswahili version of questionnaire was then developed for respondents not conversant with English. A total of 81 questionnaires were distributed in person to employees and management in the study area and were collected later at agreed time from respondents with high degree of follow up.

(iii) Documentary Review

The researcher took precautions to collaborate data from questionnaire and interview with data from other sources such as documents. In this study, the secondary data was obtained from documentary review of reports such as Healthcare salary increase reports, changes in job design and other reports on employee performance at healthcare facilities in Ilemela Municipal Council.

In summary, using a variety of data sources helped the researcher to get a broader picture of the effects of motivation on employee performance of healthcare workers in Ilemela Municipal Council.

3.7 Data Analysis

The researcher used SPSS software package version 17.0 to analyze the data. Data was presented, summarized, analyzed and interpreted as per each research objective.

In contrast, qualitative data from interview scripts, notes and statements made by interviewees was systematically coded, and classified into broad descriptive categories - exploring themes, meanings and/or issues as well as quotations that emerged from the information gained from interview. These data was further linked to the research objectives/questions to generate meaning and explanation on the study topic.

3.8 Reliability and Validity of Research Data

In research, there are two criteria used for judging the quality of research design and these are reliability and validity. How these criteria were met is discussed below.

(i) Reliability

Reliability refers to the consistency with which repeated measures produce the same result across time and across observers (Patton, 1990; 2002). In order to ensure reliability of the data, all the questionnaires used in this research were uniform to all respondents. Furthermore, the reliability of questionnaire was achieved through pre-testing with experts and selected respondents from the target population which ensured that, respondents understood the questions in the same way. At the same time all data collected about the research was uniformly processed to ensure consistency and stability of research results. The data was further analyzed uniformly to ensure that the results and conclusions drawn from the study could be reproduced if the research will be conducted again using similar technique.

(ii) Validity

Validity is the degree to which a study accurately reflects or assesses the specific concept that the researcher is attempting to measure (Polit and Hungler, 1999). Researcher ought to be concerned with both external, internal and construct validity.

External validity relates to the generalizability of research findings from survey research to entire population (Mackey and Gass, 2005). Since this research is not a statistical study and the aim is to sample widely, external validity was achieved by analytical generalization by comparing research evidence with results in existing literature.

Internal validity addresses the extent to which the differences that have been found for the dependent variable directly relate to the independent variable (Mackey and Gass, 2005).In this study, internal validity was achieved by specifying the units of analysis in

section 3.7 of this report and developed conceptual framework as shown in figure 2.1 in chapter two.

Construct Validity is the degree to which a test measures what it claims, or purports, to be measuring (Brown, 1996, p. 231). It refers to whether the operational definition of a variable actually reflects the true theoretical meaning of a concept. In this study, construct validity was achieved by pilot testing of the construct – the research instrument with some experts and make necessary adjustment to ensure that it measures what was intended to be measured.

3.9 Ethical Considerations

Privacy and confidentiality are the major ethical considerations in any research study (Emory and Cooper, 1995). This research satisfied these concerns as follows.

- The researcher first obtained a letter from the sponsoring institution (Mzumbe University) to introduce himself to the Healthcare facilities management (DMO's Office) before the commencement of the study. Permission to conduct the research was also requested from all the gatekeepers, who are the Ilemela Municipal Council Commissioner and MSD management.
- The respondents were assured that their names and other personal information would not be disclosed.
- The respondents were assured as much as possible that participation in the research was voluntary and they were free to withdraw anytime during the course of data collection.
- The collected data was presented as a group instead of individual analysis.
- The researcher respected the rights of the sponsoring institution (Mzumbe University) by conducting the research objectively.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF FINDINGS

4.0 Introduction

The chapter presents and discusses the findings of the study. This is because the interpretation and discussion of the presented data is very important to bring a clear meaning of the research findings and avoids distortion and the possibility of drawing misleading conclusion (Adam et al 2008, p, 229). The research was on examining the impact of Integrated Logistics System of healthcare commodities on customer satisfaction in Tanzanian Health System - A case of primary healthcare facilities, in Ilemela Municipal Council, Mwanza Region.

The presentation of this chapter is arranged in line with the research objectives that guided the study, which were;

(i) To assess the level of customer satisfaction of current logistics management of healthcare commodities in Ilemela Municipal Council, Mwanza Region.

(ii) To assess the extent to which integrated logistics system meets customer (dispensaries & health centres) requirements in Ilemela Municipal Council, Mwanza region.

(iii) To identify barriers / constraints associated with running of integrated logistics system in Ilemela Municipal Council, Mwanza Region,

(iv) To determine how information technology used in Integrated Logistics System affect customer order accuracy and order efficiency, discrepancy and flexibility.

(v) To identify areas for improvement on Integrated Logistics System within Medical Store Department (MSD)

However, the background characteristics of respondents are presented first to provide a clear picture of the nature of people that participated in the study.

4.1 Background Characteristics of Respondents

4.1.1 Response Rate

The study involved all healthcare workers in public Health Centre and Dispensaries in Ilemela Municipal Council of Mwanza city. A total of 81 questionnaires were sent out and 81 were returned complete and useable. This represents 100.0% response rate which is excellent because it is above industry standard of 40- 60% (Mugenda and Mugenda, 2003).

4.1.2 Demographic Characteristics of Respondents

(i) Sex of Respondents

Table 4.1 Distribution of Respondents by Sex

Sex	Frequency	Percent
Male	26	32.1
Female	55	67.9
Total	81	100.0

Source: Study Findings, 2014

Table 4.1 shows that 67.9% of respondents were female and 32.1% were Male. These results suggest that the public healthcare facilities work force in Ilemela district is dominated by female workers. This is expected because healthcare workers particularly nursing profession is generally female occupation in African countries.

(ii) Respondents' Healthcare Facilities

Table 4.2: Distribution of Respondents by Type of HF

Type of HF	Frequency	Percent
Dispensary	56	69.1
Health Centres	24	29.6
Other	1	1.2
Total	81	100.0

Source: Study Findings, 2014

Table 4.2 shows that 69.1% of respondents work in dispensaries, 29.6% healthcare centres and 1.2% in other health facilities. These results imply that the main healthcare facilities served by MSD in Ilemela District are dispensaries.

(iii) Workers' employment period at healthcare facilities

Table 4.3: Distribution of Respondents by Years of Service

Working Period at HF	Frequency	Percent
Less than 12 months	10	12.3
1 - 3 years	51	63.0
4 - 6 years	9	11.1
> 6 years	11	13.6
Total	81	100.0

Source: Study Findings, 2014

Table 4.3 shows that 63.0% of the respondents have been working in healthcare facilities for 1-3 years, 13.6% for over 6 years, 11.1% for 4-6 years and 12.3% for less than 12 months. These results suggest that the workforce in healthcare facilities in Ilemela District is experienced.

4.2 The Level of Customer Satisfaction of Current Logistics Management of Healthcare Commodities in Ilemela MC, Mwanza Region.

4.2.1 Respondents satisfaction level

Table 4.4: Distribution of Respondents on Satisfaction with MSD Activities

ILS activities	**Very unsatisfactory**		**Unsatisfactory**		**Not decided**		**Satisfactory**		**Very satisfactory**	
	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %
Shorter checkout waiting time	12	14.8	24	29.6	17	21.0	20	24.7	8	9.9
Quick response and stock out decreases	9	11.1	23	28.4	18	22.2	28	34.6	3	3.7
Transaction simplification	10	12.5	18	22.5	24	30.0	26	32.5	2	2.5
Enhanced communication	19	23.5	14	17.3	18	22.2	24	29.6	6	7.4
Short - order cycle time	14	17.3	15	18.5	16	19.8	26	32.1	10	12.3

Source: Study Findings, 2014

Table 4.4 shows the extent to which the respondents (customers) are satisfied or unsatisfied with various activities of ILS. In particular, table 4.4 shows that 9.9% of the respondents (customers) mentioned the short checkout waiting time by ILS to be very satisfactory, 24.7% satisfactory, 19.6% unsatisfactory and 21.0% undecided.

Table 4.4 also shows that only 3.7% of respondents (customers) mentioned quick response and stock out decreased by ILS very satisfactory, 34.6% satisfactory, 28.4% unsatisfactory. 11.1% very unsatisfactory and 22.2% undecided.

Table 4.4 further shows that only 2.5% of respondents (customers) mentioned transaction simplification very satisfactory, 32.5% satisfactory, 22.5% unsatisfactory and 30.0% undecided.

Also, table 4.4 shows that 7.4% of respondents (customers) mentioned enhanced communication of ILS very satisfactory, 29.6% satisfactory, 17.3% unsatisfactory, 23.5% very unsatisfactory and 22.2% undecided.

Finally, table 4.4 shows that 12.3% of respondents (customers) mentioned ILS short order cycle time very satisfactory, 32.1% satisfactory 18.5% unsatisfactory 17.3% very unsatisfactory and 19.8% undecided. These results show that the degree of satisfaction to customers on ILS in almost all its activities is low. That is (34.4 – 37.3% satisfactory rate compared to 34.0 - 44.2% unsatisfactory.

In general, these results suggest that activities performed by ILS are unsatisfactory and are not meeting customers' requirements. The relatively high degree of indecisiveness (19.8 – 30.0%) seem to suggest a good number of workers at these healthcare facilities are probably unaware of how ILS works and were unable to make a decision.

4.2.2 Overall Satisfaction Level with ILS

Table 4.5 below indicates that 3.7% of respondents were very satisfied, with ILS distribution, 34.6% satisfied 44.4% are unsatisfied, 1.2% very unsatisfied and 16.0% are neutral (not sure).

These results confirm earlier results that customers are generally unsatisfied with ILS distribution system as 45.7% respondents were unsatisfied compared to 38.3% who were satisfied / very satisfied. This calls for immediate attention by relevant authorities.

Table 4.5 Distribution of Respondents on Overall level of satisfaction with ILS distribution system.

Level of Satisfaction	**Frequency**	**Percent**
Very unsatisfied	1	1.2
Unsatisfied	36	44.4
Not sure	13	16.0
Satisfied	28	34.6
Very satisfied	3	3.7
Total	81	100.0

Source: Study Findings, 2014

4.2.3 Level of efficiency in ILS distribution system

Table 4.6 below shows that 9.9% of respondents (customers) mentioned the current ILS distribution system very efficient, 33.3% said that it is efficient, while 27.2% said that it is inefficient, 8.6% very inefficient and 21.0% were not sure. These results suggest the current distribution system in largely inefficient and needs an overhaul in order to distribute healthcare commodities at minimum cost.

Table 4.6: Distribution of Respondents on Level of Efficiency in Several ILS Distribution Systems.

Level of Efficiency	**Frequency**	**Percent**
Very inefficient	7	8.6
Inefficient	22	27.2
Not sure	17	21.0
Efficient	27	33.3
Very efficient	8	9.9
Total	81	100.0

Source: Study Findings, 2014

4.3 The Extent to Which Integrated Logistics System Meets Customers' Requirements in Ilemela MC

4.3.1 The Extent to Which ILS is Meeting Customers' Requirements

Table 4.7: Distribution of Respondents on Extent to which ILS meets customers' requirements

	Strongly disagree		**Disagree**		**Undecided**		**Agree**		**Strongly agree**	
	Count	Row %	Count	Row %	Count	Row %	Count	Row%	Count	Row %
Medicines and medical supplies are supplied on time	11	13.6	24	29.6	15	18.5	26	32.1	5	6.2
Medicines and medical supplies are in full supply	14	17.3	30	37.0	17	21.0	15	18.5	5	6.2
Facility or customer is informed of new supplies	18	22.2	29	35.8	12	14.8	15	18.5	7	8.6
Facility or customer is informed in advance about stocked out commodities	13	16.0	29	35.8	16	19.8	17	21.0	6	7.4
Facility or customer is required to submit requirement	6	7.4	22	27.2	19	23.5	24	29.6	10	12.3
Facility or customers are informed of changes in guideline	7	8.6	27	33.3%	18	22.2%	27	33.3	2	2.5

Facility or customers are given opportunities to visit MSD	18	22.2	29	35.8	14	17.3	13	16.0	7	8.6

Source: Study Findings, 2014

Table 4.7 shows that 38.3% of respondents agreed / strongly agreed that medicines and medical supplies are supplied on time, while 43.2% disagreed / strongly disagree with that statement and 18.5% were undecided.

Table 4.7 also shows that 24.7% of respondents agreed / strongly agreed that medicines and medical supplies are in full supply, while 43.2% disagreed / strongly disagreed with that statement and 18.5% were undecided. Table 4.7 also shows that 24.7 of respondents agreed / strongly agreed that medicines and medical supplies are in full supply, while 54.3% disagreed / strongly disagreed and 21.0% were neutral to the statement.

Table 4.7 further shows that 27% of the respondents agreed / strongly agreed that the facility or customer is informed of new supplies, while 58.0% disagreed / strongly disagreed to the statement and 14.8% were neutral.

Furthermore, table 4.7 shows that 28.4% of the respondents agreed / strongly agreed that the facility or customer is informed in advanced about the stock out of medicines and medical supplies at MSD, while 51.9% of respondents disagreed / strongly disagreed with statement and 19.8% were neutral.

Also, table 4.7 shows that 42.0% of respondents agreed / strongly agreed that the facility or customer is required to submit their annual requirements (forecast) of medicines and medical supplies, while 34.6% disagreed / strongly disagreed with statement and 23.5% were neutral.

In addition, Table 4.7 shows that 35.8% of the respondents, agreed / strongly agreed with statement that the facility or customer are informed of any changes in guidelines,

policies and interventions brought in by MSD, Government and its partners while 42.0% disagreed / strongly disagreed with the statement and 22.2% were neutral.

Finally table 4.7 shows that 24.7% of the respondents agreed / strongly agreed with the statement that the facilities or customers are given opportunities to visit MSD offices and discuss or exchange views about MSD operations with managers while, 58.0% disagreed / strongly disagreed with the statement and 17.3% were neutral.

In general, these results suggest that customers (healthcare facilities) were mostly unsatisfied with ILS distribution function of MSD as the distribution system is not satisfactorily meeting customers' requirements except in the area of customers being asked to submit the annual requirement (42.0% satisfactory rate).

4.3.2 Rating of how Overall MSD meets customer requirements

Table 4.8: Distribution of respondents on overall rating of how ILS meets customers' requirements

Rating	Frequency	Percent
Very poor	6	7.4
Poor	28	34.6
Undecided	19	23.5
Good	21	25.9
Excellent	7	8.6
Total	81	100.0

Source: Study Findings, 2014

Table 4.8 shows that 8.6% of respondents viewed MSD as being very excellent in meeting customer requirements, 23.5% good, 34.6% poor, 7.4% very poor and 23.5%

were undecided. These results confirm earlier results that ILS in not satisfactorily meeting customers' requirements.

4.4 Challenges Associated with Running of Integrated Logistics Management System in Ilemela MC, Mwanza Region

Table 4.9: Distribution of respondents on barriers / constraints that ILS face in its distribution function

Type of Constraint	**Most important**		**2nd most important**		**3rd most Important**		**4th most important**		**Least important**	
	Count	Row%	Count	Row %	Count	Row %	Count	Row %	Count	Row %
Lack of advanced logistics management knowledge	23	28.4	8	9.9	22	27.2	11	13.6	17	21.0
Imperfect integrated logistic information system	7	8.6	21	25.9	25	30.9	14	17.3	14	17.3
Poor relationship between MSD and health facilities	17	21.0	17	21.0	31	38.3	9	11.1	7	8.6
Delivery delays caused by constant traffic jam	7	8.6	14	17.3	20	24.7	25	30.9	15	18.5
Lengthy Government procurements policy	22	27.2	17	21.0	17	21.0	14	17.3	11	13.6
Lack of Industry electronic data interchange standard	5	6.2	5	6.2	17	21.0	33	40.7	21	25.9
Insufficiently high percentage of PC usage	5	6.2	3	3.7	21	25.9	35	43.2	17	21.0

Source: Study Findings, 2014

Table 4.9 shows that there are several barriers / constraints in order of importance are: lack of advanced logistics management knowledge (66.0%), lengthy government purchasing policy (75.2%), poor relationship between MSD and health facilities

(86.6%), imperfect integrated logistics information system (65.1%) and delivery delays due to constraint traffic jam in the system (52.2%) . Other identified barriers/ constraints were lack of industry electronic data interchange standards and insufficient high percentage of PC usage. Most of these items are not controllable but strategies can be developed to overcome them.

One of the constraints that ILS is facing is the fact that many healthcare facilities are widespread through the catchment area. Secondly, HF make orders sporadically (intermittently) and this causes a problem in designing and implementing well – thought out daily and weekly route plan for effective management / coverage of the area. This causes problems in the logistics in the entire supply chain.

This was summarized by comment from an interview *"In ILS the facility or customer is not allowed to make emergency order, therefore if any medicines or medical supply is missed in the first order it may only be obtained during the next ordering cycle, due to lengthy lead time of ILS the facility constantly experiences stock out of medicines and medical supplies".*

4.5 Determination of how Information Technology within Integrated Logistics System Affects Customer Order Accuracy and Order Efficiency, Discrepancy and Flexibility

Table 4.10 Distribution of respondents on the Level of importance placed on ILS activities

	Least important		Fourth most important		Third most important		Second most important		Most important	
Level of Importance	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %
Shorter order cycle time	18	22.2	12	14.8	19	23.5	18	22.2	14	17.3
Higher frequency of delivery	18	22.2	11	13.6	22	27.2	15	18.5	15	18.5
Lower spoilage	18	22.2	15	18.5	20	24.7	22	27.2	6	7.4
Quick response to rush orders	15	18.5	11	13.6	22	27.2	18	22.2	15	18.5
Easy manipulation of electronic ordering system	19	23.5	15	18.5	24	29.6	17	21.0	6	7.4
Lower order picking error rate	14	17.3	20	24.7	20	24.7	21	25.9	6	7.4

Source: Study Findings, 2014

Table 4.10 shows that the activities when aggregated on first, second and third positions, 67.9% of respondents considered quick response to rush order as the most important requirement, followed by shorter order cycle time (63.0%), higher frequency delivery

(64.2%), lower spoilage (59.3%), easy manipulation of electronic ordering system 9.87.0% and lower rate (8.0%).

These results suggest quick response to rush order, higher frequency of delivery and shorter order cycle time as the three most important desired activities that customers want from ILS. This is because, of unpredictability nature in healthcare, most of the healthcare needs are abrupt and most medicines are required on needs basis and are not easy to plan for them.

4.6 Areas for Improvement on Integrated Logistics System within Medical Stores Department

Table 4.11 Distribution of Respondents on Strategies to improve ILS Operations at MSD

Proposed strategies	Frequency	Percent
System have provision for order change	3	4.2
Outsource the distribution service	10	15.3
Provision of regular feedback to customers on the stock level of medicines and medical supplies	9	12.5
Provision of regular feedback to MSD on the stock which are about to expire	6	8.8
Interactive communication between MSD and customers	8	11.1
Better utilization of existing database	4	5.0
Introduce priority order and delivery system	15	20.8
Involve Healthcare Facilities decision making about MSD decisions and new interventions	5	6.9
Observe and adhere to FIFO system in drug usage	8	11.1
Attach a Drug Specialist/pharmacist to provide advice in ILS on package of supplies prior to shipment	3	4.2
Total	72	100.0

Source: Study Findings, 2014

Table 4.11 shows the strategies that can be implemented to improve the ILS. The five most frequently suggested strategies were: introduce priority order and delivery system (20.8%), outsource the distribution function (15.3%), provision of feedback to customers on the stock levels of medicines and medical supplies (12.5%), provision of regular feedback to MSD managements on stock levels which are about to expire (11.1%), and introduction of interactive communication between MSD and customers (11.1%). Other suggested strategies included: the involvement of healthcare facilities in decision making (7.8%), how MSD should serve the facilities (6.9%), better utilization of existing database (5.0%), system should have provision for order change (4.2%) and have on site drug specialists / pharmacists to advise MSD on selection and packing prior to shipment (4.2%). These strategies which were suggested by both facilities management and Health care workers will go a long way in improving the ILS distribution system to its customers.

4.7 Other Pertinent Findings

Interview was conducted with selected healthcare employees and management from several healthcare facilities in the Ilemela District. These interviews based on ILS and strategies for improving the distribution service delivery.

First, the MSD management stressed that ILS is a system that has been designed by the Tanzanian government that healthcare facilities have to work with. Any changes to the system is usually done from the head office and the management at local healthcare facilities do have little input although they have raised several concerns about how the distribution system can be improved. Management further stressed that any system of distribution ought to consider its target audience (customer requirements) as they are the ultimate beneficiaries However, they also conceded that some barriers / constraints such as traffic jam in the system and unpredictable nature of needs in the healthcare industry sometimes makes planning a challenging task. This is compounded by the fact that the supply side of the medicines is dependent on the availability of Government funding, donor funding and changes in Government policy and thus, the blame cannot be placed

on ILS only. Nevertheless, ILS activities such as transactions simplification, enhanced communication and short order cycle time can be improved by local ILS personnel.

For selected healthcare employees interviewed, they indicated a slight different picture of ILS. Most of them indicated that, the key issue responsible for inefficiency in ILS was lack of planning and forecasting the needs of medicine and medical supplies. They have information in their database of the patterns of demand and supply, but yet such information is hardly utilized. Furthermore, the employees stressed that MSD does not encourage discussion or advice from management of healthcare facilities to share information relating to demand of medical supplies and medicine instead their communication with higher levels jeopardises the power of the primary customers who are Health Centres and Dispensaries. The absence of such dialogue has curtailed the development innovation and creativity in the local supply chain. This was summarized by a comment from healthcare employee:

"Here at healthcare facilities as well as at MSD, we are aware and know that ILS distribution system is poor. We tell the management and MSD the same message. The issue is anything to be done has to come from head office. Furthermore, the matter is complicated by political interests and interference. So we stand there watching a ship sinking but we can do nothing to rescue it".

Another issue raised by customers was that the quality of customer care is low and most of the MSD officials have little concept of customer care. Healthcare is a basic need to every citizen and it is the duty of MSD to provide the delivery of medicines and medical supplies as efficiently as possible. For example, the healthcare employees stressed that vehicles distributing medicines move with drivers alone who know very little about medicines importance making handling of medicines inappropriate.

Another issue raised was poor communication between the customers and service provider (ILS). Furthermore they complained that most of the employees at MSD take themselves as bosses and are not customer centred at all. Nevertheless, the healthcare

employees also admitted some issues such as vehicle breakdown and reliance on donor funding have become some of the constraining factors to the distribution service.

Another issue healthcare workers raised was the supply of medicines and medical supplies should be offered to private firms to introduce some competition in the market for these workers thought that such competition will force the Government suppliers and MSD to raise up their quality of customer care services.

On other aspect of the MSD and its customer relationship that was emphasized is the need to have regular communication between healthcare facilities and MSD especially before supply of medicine and medical supplies, this will ensure that what is delivered to the healthcare facilities is what is needed and in right quantities. The healthcare employees indicated that, there is need to give updates to all workers in MSD and healthcare facilities about need of intervention, change in policy and challenges of sourcing drugs.

The healthcare facilities stressed concern about the consignments they receive from MSD. They indicated that sometimes, wrong drugs or nearly expiry drugs are delivered and sometimes poorly packaged which interferes with quality of medicines. For this, they suggested that MSD should employ pharmacists or drug experts to ensure ordered items are the items delivered in a protective package and that drugs which are not needed should not be delivered. Another issue healthcare provider complained about was a delay in delivery of the required supplies possibly because there are not enough vehicles to move to different places simultaneously or ultimately. One option they suggested was to have alternative system of distribution such as outsourcing some distribution function instead of only ILS/MSD being the sole distributor. That will fill that gap where ILS is failing or inefficient and will introduce the culture of competition in the distribution sector.

Several other suggestions were proposed by customers (healthcare facilities) to improve ILS. First, MSD should be willing to think out of the box and look at innovative ways of

distributing medicines and medical supplies. Secondly, MSD ought to value its customers even in the unpredictable nature in healthcare system, strive to use effective problem solving practices and engage the relevant stakeholders in an atmosphere that creates integrated approach to distribution system and introduce best practices of customer care.

They also suggested that MSD should strive to understand customers' requirements through regular surveys or suggestion box, and incorporate some of the suggestions as part of continuous service improvements.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

The study was carried out to assess the impact of integrated logistics system (ILS) of healthcare commodities on customer satisfaction in Tanzania Health system - a case of primary healthcare facilities in Ilemela MC, Mwanza region. This chapter presents summary, conclusion and recommendations which will assist the primary healthcare sector especially ILS/MSD in their quest for service of excellence and gain public confidence in the distribution system

5.1 Summary

Research objective 1: To assess the level of customer satisfaction of current logistics management of healthcare commodities in Ilemela District, Mwanza Region.

The research revealed that less than 50% of the customers / healthcare facility workers were unsatisfied with ILS activities (34.6 to 44.4%) and also 34.65 to 44.4% were satisfied. That is the satisfied and unsatisfied customers were evenly divided about ILS activities.

The study also revealed that over 45.7% of customers were unsatisfied and 48.3% were satisfied. These results thus supported earlier results that customers are evenly divided in their level of satisfaction with ILS activities. Furthermore, research findings revealed that 43.2% customers found ILS to be efficient compared to 35% who found it inefficient. Thus these results also show that customers were somewhat equally divided on their assessment of the efficiency with in ILS activities of MSD.

It can be concluded that ILS services is unsatisfactory and inefficient and this has to some extent contributed to low quality services being provided at healthcare facilities especially where the supply of medicine and medical supplies are concerned.

Research objective 2: To assess the extent to which integrated logistics system meets customer (dispensaries & health centre) requirements in Ilemela District of Mwanza region.

The research findings revealed that 24.7% to 42.0% of customers agreed that ILS activities meet their requirements while 43.2 to 58.0% disagreed that ILS activities met their requirements in particular the only a ILS activity that reasonably meet customer requirement was where customers were required to submit annual requirement of medicines and medical supplies (42% or respondents agreed).

In contrary, ILS failed to meet customers' requirements of informing them of new medicines and medical supplies, (58% disagreed), giving opportunities to customers to visit MSD office and discuss or exchange views about MSD operations (55% disagreed) and informing customers of what medicines and medical supplies are in full supply most of time (54.3%) disagreed). Thus over all, the majority of the customers / healthcare facilities found that ILS did not meet most of their requirements and cannot be taken to be meeting its most of obligations.

Research Objective 3: To identify challenges/constraints associated with running of integrated logistics system in Ilemela District of Mwanza Region

The research findings indicated that ILS faces a multitude of barriers / constraints in its operations. These are in the order of importance / impact: poor relationship between MSD and healthcare facilities, lengthy government purchasing policy, lack of advanced logistics management knowledge, imperfect integrated logistics information system and delivery delays due to constant traffic jam in the electronic systems. Other though considered less important barriers/ constraints were: lack of industry electronic data interchange standards and insufficient high percentage of Universal Product Code usage. Most of these barriers are beyond the control of ILS at regional level and may need a national approach to reduce their impact on the ILS operations

It can be concluded that there are a multitude of constraints ILS meet and most are beyond their control. Nevertheless, the management can introduce strategies to minimize their impact on healthcare service delivery.

Research objective 4: To determine how information technology within integrated Logistics system affect customer order accuracy and order efficiency, discrepancy and flexibility

The research revealed that there were several service items/activities which were considered important in relation to ILS in the distribution and delivery of health commodities to healthcare facilities. These were in order of importance: quick response to rush order (67.9%), higher frequency delivery (64.2%), shorter order cycle time (63.0%), lower spoilage (59.3%), easy manipulation of electronic ordering system (58.0%) and lastly lower order picking error rate (58.0%), Thus these results highlighted that in primary healthcare system the distribution system should be able to respond to rush orders for emergency cases, and be able to deliver at high frequency and accuracy. Because consumption at hospitals is usually unpredictable, supplies should be of shorter older cycle time with minimum time delays because it is the key factor in medical services where the provision of the service is a matter of death and life especially in emergency cases.

Research objective 5: To identify areas for improvement of integrated logistics system within Medical store Department

The research identified several strategies that ILS/ MSD can use to manage and improve its distribution system to its customers, These were included in order of their frequency of suggestion: introduce a priority order and delivery system, outsource the distribution function, customers should provide feedback to MSD on stock level of medicine and medical supplies, and introduction of interactive communication between MSD and customers. Other proposed strategies included involving healthcare facilities in decision process about how MSD could better serve its customers, better usage of

existing data base, introduction of a system for easy order change and employing drug specialists or pharmacists to advise MSD on packaging prior to shipment in order to reduce spoilage on transit and mistakes in order fulfilment.

5.2 Conclusion

This research on the impact of ILS on customer satisfaction has highlighted that, the key to success lays in planning, well – designed distribution organization, prudent selection of supply firms, close relationship with end – users (customers, in this case healthcare facilities), good logistics, elimination/minimization of barriers, management commitment and continuous improvement logistics.

The current ILS along with clustering and co-ordination plus further integration and optimization techniques could reduce transport distance or frequency of vehicle movement (trips) time and omission or non – delivery of orders and improve vehicle capacity utilization in the local MSD catchment. The ILS in the study area can improve performance of the entire supply chain by reducing supply delay and increasing safety as well as customer satisfaction.

The results further indicated that ILS service performance is an important antecedent to customer satisfaction, whereas Information Technology has significant effect on order accuracy, order efficiency, order discrepancy and flexibility under construct of the ILS performance.

5.3 Recommendations

The results of this study have identified various issues that need immediate attention by stakeholders in the primary healthcare sector and its distribution system.

The study revealed that there is laxity in the communication between HF and ILS, leading to poor response in delivery of required goods. The ILS management team and heads of HF should create a platform that will enable the two points to facilitate the

communication and planning on supplies issues using such collaboration systems, This will help MSD to respond quickly to HF (customers) demand. It will also help in the cost reduction in logistics activities both to MSD and to other supply agents.

The results also revealed that there was a poor performance in the entire MSD primarily due lack of collaborative operations from each connection in the supply chain. To cape with this, the supply chain should develop coordination strategies for example, training the business strategy to shape up working tactics throughout the supply chain. The healthcare facility (HF) should also determine their strategies and draw the co – operating actions inter-healthcare facilities (within the HF) strategy which will extend further to other members of the supply chain.

The results revealed the customers' requirements / demand pattern differ in each HF location even when there is annual supply plan. This is further complicated by perishable nature of some medicines that need quick response time to demand. MSD through ILS section and HF should design strategies that make sure operations and distributions are delivered cohesively. This will result in responsiveness with proper amount of effectiveness and efficiency in operations that ensures a reliable and dependable supply chain.

The results further indicated that there is a low level of customer satisfaction with MSD through ILS about its services delivery. There is a need for immediate training of MSD operations and service delivery staff about customer care principles. This will ensure, they understand their obligations, customers' (HF) needs and what efforts are needed to meet those customer requirements. It will also assist in improving community perception of their image of MSD.

5.4 Suggestions for further research

The current study focused mainly on the impact of ILS on customer satisfaction in Ilemela District. Further studies are needed on local / support supply chain focusing on

procurement, inventory management, and storage and packaging activities to address the holistic view of ILS.

This study focused on MSD in Mwanza Zone, more extensive research is needed in other provisional zones prior to generalization to the entire population (Tanzania). New technology and site specific detailed studies are needed to enable dynamic planning for solving problems related to potential changes in medical service needs.

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RESEARCH QUESTIONNAIRE

CUSTOMERS ONLY

PART 1: DEMOGRAPHIC INFORMATION

1. Gender

   Male ☐

   Female ☐

2. Which health care facilities do you work with.

   Dispensary ☐

   Health Centre ☐

   Other (please specify) _____

3. How long have you been working at your present health care facility
   - 1 month
   - 1-3 years
   - 4-6 years
   - 6 years and above

PART 2: SERVICE ITEMS OF INTEGRATED LOGISTICS SYSTEM

4. Please indicate the level of importance you place on each of the following statement on service item in relation to the distribution system (Integrated Logistics system) used to deliver health commodities to your dispensary/healthcare centre. Use the following scale: 1= least important 5 most important in relation to the following:

	Least important	Fourth most important	Third most important	Second most important	Most important
Service item	**1**	**2**	**3**	**4**	**5**
Shorter order cycle time					
Higher frequency of delivery					
Lower spoilage					
Quick response to rush orders					
Easy manipulation of electronic orderings system					
Lower order picking error rate					

PART 3: LEVEL OF SERVICE PERFOMANCE FOR ILS WITHIN MSD

4. Please indicate the extent to which you are satisfied with level of ILS performance on each of the following items

	Very unsatisfactory	Unsatisfactory	Not satisfactory	Satisfactory	Very Satisfactory
Performance item	**1**	**2**	**3**	**4**	**5**
Shorter checkout waiting time					
Quick response and stock out decreases					
Transaction simplification					
Enhanced communication with customers					
Short-order cycle time					

6. Overall rating,

Please, rate your level of satisfaction with the service provided through ILS distribution system of health commodities to the Health centres and Dispensaries. (Tick one)

- Very unsatisfied

- Unsatisfied
- Not sure
- Satisfied
- Very satisfied

7. Please rate the current distribution system of health care commodities with MSD (Tick One)

Very inefficient	Inefficient	Not sire	Efficient	Very efficient
1	2	3	4	5

PART 4: BARRIERS/CONSTRAINTS THAT THE DISTIBUTION SYSTEM FACES

8. .Please pick five (5) important barrier/constraint items you see hindering the efficient and effective performance of distribution system (ILS) of healthcare commodities to your dispensary or healthcare facilities. Then after that, rank them in order of importance as follows:

1= Most important ……. 5= Least important

- Lack of advanced logistics management knowledge
- Imperfect integrated logistics information system
- Poor relationship between MSD and health facilities
- Delivery delays caused by constant traffic jam
- Lengthy Government purchasing policy

- Industry specific electronic data interchange standard is unavailable
- Insufficiently high percentage of Universal Product Code usage

PART 5: GENERAL INFORMATION

9. What are your suggestions for improvement of distribution system (ILS) in Tanzania (MSD)

_____

_____

_____

_____

_____

10. What comments can you make about distribution system (ILS) in Tanzania (MSD). Please write your comments below

_____

_____

_____

_____

_____

_____

THANK YOU