THE ROLE OF INFORMATION SYSTEM ON LOGISTICS MANAGEMENT PERFORMANCE IN THE ETHIOPIAN SHIPPING AND LOGISTICS SERVICES ENTERPRISE

By

ZEWDIE TAYE

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Advisor: Shiferaw Mitiku (Ph.D.)

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Approved by Board of Examiners

Shiferaw Mitiku (Ph.D.)	_____
ADVISOR	SIGNATURE
Matiwos Ensermu (Ph.D.)	_____
INTERNAL EXAMINER	SIGNATURE
Nakachew Bashu (Ph.D.)	_____
EXTERNAL EXAMINER	SIGNATURE

DECLARATION

I hereby declare that the work which is being presented in this thesis entitled "***The Role of Information System on the logistics management performance in Ethiopian Shipping and Logistics Services Enterprise***" is original work of my own, has not been presented in any of other university and that all sources of material used for the thesis have been duly acknowledged

ZEWDIE TAYE

GSE/2678/10

Signature _____

Date_____

CERTIFICATION

This is to certify that Zewdie Taye Zemedkun has carried out his thesis work on the topic entitled "***The Role of Information System on the logistics management performance in Ethiopian Shipping and Logistics Services Enterprise***". The work is original and is suitable for submission for the award of a Master's Degree in Logistics and Supply Chain Management.

Advisor Shiferaw Mitiku (Ph.D.)	**Signature**	**Date**

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Zewdie Taye

Addis Ababa

ABSTRACT

Information system solutions in logistics management have often been approached from various dimensions with a focus on the overall effect on Reliability, Responsiveness, and Flexibility. Reliability and responsiveness in the logistics industry through various modalities such as performance of Information system solutions has seen improvements in logistics management systems. However, many sectors of the logistics industry still run on traditional or manual systems and this could be attributed to their ineffective and inefficient performance. There exists a research gap in this area of the role of Information system on the logistics management performance in Ethiopian Shipping and Logistics Services Enterprise. The study employed a descriptive and explanatory research design. The population comprised of 94 employees in Ethiopian Shipping and Logistics Services Enterprise. The stratified sampling techniques were applied after the population divided into the appropriate strata and a proportionate sampling was taken from each stratum to represent all the strata .76 employees were found to appropriately match the population size of 94 and selected for this study from the Inventory, Transport, Warehouse and Procurement sections including Information and Communication Technology and other departments. Factor analysis was used to reduce the variable dimension and descriptive statistics were used to identify the challenges of hindering the adoption of Information systems on logistics management performance. Correlation and Regression analysis approaches were used to investigate the relationships between the variables and the extent to which the independent variables explained logistics management performance. The finding shows that lack of education and training was the major Information system adoption challenges and to alleviate the challenge a careful assessment of education and training needs should minimize this problem. Therefore Ethiopian Shipping and Logistics Services Enterprise need to improve Information system adoption and Information system capability to improve on the logistics management performances especially in the areas of inventory, Transport, warehouse, and procurement activities.

Table of Contents

List of Tables

List of figures

List of Acronyms and Abbreviations

LMIS	Logistics Management Information Systems.
LM	Logistics Management
LIS	Logistics Information Systems.
IT	Information Technology.
ICT	Information Communication Technology.
ERP	Enterprise Resource Planning.
SCM	Supply Chain Management.
WMS	Warehouse Management System.
IM	Inventory Management.
WM	Warehouse Management.
TM	Transport Management.
PM	Procurement Management
IS	Information System
ESLSE	Ethiopian Shipping and logistics services enterprise
GPS	Global positioning system
TC	Technical Challenges
OC	Organizational Challenges
UC	Users Challenges

CHAPTER ONE

INTRODUCTION

This chapter presents will focusing on the background of the study, statement of the problem, the objective of the study, in this objective to includes a general objective, specific objective and the research questions of the study and the other: scope and delimitation of the study, the significance of the study and at the end organization of the study will explain.

1.1 Background of the Study

Logistics is that the process of designing, implementing, and controlling the efficient, effective flow and storage of products, services, and related information from the purpose of origin to the purpose of consumption to substantiate the customer requirements (American council of Logistics management, 2011). Logistics is essentially a planning process and an information-based activity. Logistics is science of designing, organizing, and managing activities that provide goods or services.

Logistics is that a part of the supply chain process that plans, implements, and controls the effective forward and reverse flow and storage of products, services, and related information between the purpose of origin and also the point of consumption, to satisfy the customer's requirements. (Reji Ismail, 2008). Logistics is the designing and managing of a system to manage the flow of fabric throughout a company. This is often a really important part of a global company due to geographical barriers. Logistics of a global company include the movement of raw materials, coordinating flows into and out of various countries, choices of transportation, and value of transportation, packaging the merchandise for shipment, storing the merchandise, and managing the complete process.

Logistics information system (LIS) involves the combination of data, transportation, inventory, warehousing, material handling, and packaging. The logistics information system, information is because of the lifeblood of a logistics and distribution system. The effectiveness and accuracy of distribution systems depend upon the

transfer of data. The logistics information system holds the full system and coordinates all the components of logistics operations: planning and coordination and operation. Planning and coordination define the nature and placement of shoppers that provide chain operations seek top match to planned products and services and promotions (Shivani Dubey and Dr. Sunayana Jain, 2014).

A logistics system links up the logistical activities. It integrates several information sources, including the order information, purchasing information, production information schedule, the packaging information schedule, the transport and warehousing information, the distribution information, the payment information, and also the delivery information. It serves to enable logisticians to retrieve data as and when it's required, process data through the system, and analyzes data. (Voortman. C,, 2004).

As cited by Rediet, 2019. Ethiopian logistics management system, in general, is characterized by the poor logistics management system and lack of coordination of products transport and low level of development of logistics infrastructure The extent to which the organizations still face problems concerning logistics management depends on IT's level of awareness and acceptance of IT's importance. The utilization of ICT in logistics is sort of nonexistent. The Universal Product Code reader is utilized at the till of supermarkets but it is not connected with inventory or warehousing management system. MOT plans to introduce tracing and tracking using GPS, and software, databases, and other logistics ICT applications (Fekadu, 2013).

1.2 Statement of the problem

A logistics management system (LMIS) is that the system of records and reports that you simply use to gather, organize, and present logistics data gathered across all levels of the system. Most significant, and LMIS enables logisticians to gather the information needed to form informed decisions that may ultimately improve customer service.

The adoption of a system within the logistics industry is due to the very fact that linguistic barriers needed to be put to an end to enable easy and cheaper communication during a transaction. it's to foster customer- relationship, increase customer satisfaction,

improve operational efficiency, reduce the running cost, reduce transaction time, give logistic firms competitive edge, provide security to investors fund and promotion of other financial services and movement of products across the world.

Despite the adoption of data technology in logistic sectors today with its numerous objectives, observation has however shown that not all the objectives are realized and felt by users. It's highly disheartening to watch that, some among many undertaken don't seem to be working to plan thereby causing more harm than good to shareholders, potential investors among other users and traders. Logistic firms today seem to be mainly curious about the movement and procurement of products from one point to the opposite while maximizing profit, thereby losing sight of the critical and more important areas like making transaction equipment's work to a customary, providing security to goods on transit. Logistic firms today are unable to comply strictly with the mission statement/corporate mission with information technology. Much of the logistic management doesn't arrange to meet the service quality and security of products.

The logistics firm's management must sustain with the continual technological changes happening around the world as this has the potentiality of affecting their performance in terms of security, clearance, and repair delivery. Despite this innovation 'information technology', Logistic firms still find it difficult to properly prepared transactions, giving goods on transit proper security, and efficient clearance thereby resulting in loss of trust by customers. Additionally, the Logistics firms have found it a challenge to grow and link up with their responsibilities because the volume of transactions increases day by day. No matter the very fact that Logistic firms are making much profit, they still suffer from inefficiencies and insecurity. Critically evaluating the introduction of data technology due to its objectives, it's not a priority with what quantity technology is provided but how well it serves potential users with the knowledge system. Nobody studies are disbursed to induce occurring the role of a system on Logistic management performance in Ethiopia is that the research gap.

Logistics information systems (LIS) are specially designed to support all elements of logistics processes, including coordination of logistics activities, material flow, and

inventory replenishment (Douglas M. Lambert, 1998). By necessity, this involves a mix of hardware and software additionally to supporting data exchange and capturing technologies, supported by different companies or branches by specialized logistics information systems (LISs). It's recognized that overall logistics performance may be improved by using information technology or system (IT/IS) and while many firms have enabled transactional processing, they still request improvements to enable IT to support improved planning and decision support applications (Sundarakani, Tan, & Over, 2012).

According to Langley (1986), the IS/ICT is important to logistics, since they create available the correct information, at the correct time and the correct place. This popular logistical paradigm, which most frequently refers to physical goods, is shown to own equal relevance within the management of data. Introna (1991) demonstrates that while the logistical system converts materials into products, through the creation useful for purchasers, the knowledge and communication systems convert data into information, to facilitate the managerial higher cognitive process. Both authors infer that information could be a resource to be used for a higher cognitive process that subsequently enhances logistical effectiveness, efficiency, and adaptability.

Reliability, responsiveness, and flexibility within the logistics industry through various modalities like adoption system solutions have seen improvements in customs management systems, security (tracking and tracing shipments), and knowledge sharing. However, many sectors of the logistics industry still run on traditional or manual systems and this might be attributed to their ineffective and inefficient performance. Not many studies are disbursed to look at the role of information system on logistics management performance among logistics firms in Ethiopia is that the research gap. It had been during this light that the study sought to answer the subsequent research question: what's the role of data system adoption on logistics management performance in ESLSE?

1.3 Objective of the Study

1.3.1 General objective

The general objective of the research study is to assess the role of information system on the logistics management performance in Ethiopian Shipping and Logistics Services Enterprise.

1.3.2 Specific objective

Specifically, the study has the under listed specific objectives:

- To assess the practices of the logistics management system of the Ethiopian Shipping and Logistics Services Enterprise.
- To examine the role of Information system on the logistics management performance of Ethiopian Shipping and Logistics Services Enterprise.
- To measure the performance of logistics management Practices of Ethiopian Shipping and Logistics Services Enterprise.
- To identify challenges hindering the adoption of Information system on LM practices of Ethiopian Shipping and Logistics Services Enterprise.
- To assess the quality of ICT support services provided to the logistics management practices of Ethiopian Shipping and Logistics Services Enterprise.

1.3.3 Research Questions

- How logistics management is being practiced at Ethiopian Shipping and Logistics services Enterprise?
- What is the role of the Information system in the logistics management performance of the Ethiopian Shipping and Logistics services Enterprise?
- What is the performance of logistics management Practices of Ethiopian Shipping and Logistics services Enterprise?
- What are the major challenges hindering the adoption of Information system on logistics management practices at Ethiopian Shipping and Logistics services Enterprise?

- What is the quality level of ICT support services provided to the logistics management practices of Ethiopian Shipping and Logistics services Enterprise?

1.4 Scope of the Study

Due to time and resource constraints, the researcher has chosen the Kality Inland transport and Kality port and terminal branch offices as a geographical area of the study. Conceptually, the study was delimited to assess the role of information system on the logistics management performance in ESLSE. The study looks into the current role of the Information system on the logistics management performance of the ESLSE.

1.5 Significance of the Study

The findings of the research will have both practical and theoretical significance. Some of them are:-

The main significance of this research study was to show the role of logistics management information system functionality in the ESLSE and the facing of challenges in the adoption of the system, It furnishes useful information and practical hints that may help managers of the ESLSE, through different levels and users to get a better knowledge of the role and adoption of the logistics management information systems performance.

1.6 Organization of the Study

This study organized under 5 chapters. The first chapter was the introduction part which briefly explains the research problem, objective, and significance of the research, scope, and delimitation. The second chapter was about a review of related literature of Logistics management information system performance. The third chapter discusses in detail the methods of the study, data collection, and methods of techniques and tools. The fourth chapter analyzed and discusses the result and the fifth chapter presents a summary, conclusion, and recommendation.

CHAPTER TWO

2 RELATED LITERATURE REVIEW

This chapter presents theoretical and empirical literature in, relation to Logistics Information (LIS) systems relevant to the focus of this research. The chapter is organizing in the following manner, firstly will look at the logistics management practices, the role of Information system on Logistics management, Logistics management performance measurement, challenges of Information system adoption in Logistics management practices, and Finally the conceptual framework that guides this study will presents.

2.1 Theoretical Literature Review

2.1.1 Logistics Management Practices

Within a company, a supply chain refers to a large range of functional areas. These include Supply Chain Management-related activities like inbound and outbound transportation, warehousing, and internal control. Sourcing, procurement, and provide management to be the logistics and supply-chain umbrella, too. Forecasting, production planning and scheduling, order processing, and customer service all are a part of the method furthermore. Importantly, it also embodies the knowledge systems so necessary to observe all of those activities. Simply stated, "The logistics and provide chain encompasses all of these activities related to moving goods from the raw materials stage through to the tip user (Zigiaris, 2000). The main functional areas of logistics management are Network Design, Information Technology, Transportation, Inventory and Storage, Warehousing, Handling, Loading and unloading, Customer service performance monitoring, Order processing/customer service Supply Chain Management budget forecasting (Zigiaris 2000).

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- **Inventory management**

Inventory management involves trading off the amount of inventory held to attain high customer service levels, with the value of holding inventory which incorporates capital busy in inventory, variable storage costs, and obsolescence. (Stock & Lambert, 2001).

Inventory management is that the process of consistently having the optimal amount of raw materials for transformation and finished products available to deliver them rapidly to fulfill a customer's inventory requirement during a competitive manner (Bowersox, et al., 2010).

Inventory is technically an asset, but it's indirectly taxing on the profitability of the firm. Hence, besides the varied activities related to a lean supply chain, corporations across the globe are always finding different methods and techniques to scale back the investments in inventory. With the newest IT tools and communication technologies, it's become comparatively easier than before to size and control this single largest cost spinner within the logistics and provide chain. It's probably logical that inventory should be held only the advantages of holding inventory exceed the value of holding it. (CBSE, 2017).

A database used for storing and administering every kind of knowledge required for efficient and accurate warehouse inventory management. this might include modules or fields for keeping track of all items and locations, requisitions, backorders, required levels of inventory available, reorder points, lead times, inventory error tracking, and more. This sort of system may interface with ERP and other applications. Without a listing management system, the products and products that flow through a corporation will inevitably be in disarray. a listing management system enables a corporation to keep up a centralized record of each asset and item within the control of the organization, providing one source of truth for the situation of each item, vendor and supplier information, specifications, and also the total number of a selected item currently available (Nicole Pontius, 2019). Because inventory often consists of movable assets, inventory management systems are critical for keeping tabs on current stock levels and understanding what items move quickly and which items are more slow-moving, which

successively enables organizations to see when it‘s time to reorder with greater accuracy. Overall, a comprehensive inventory management system offers benefits to companies including Improved income, better reporting and forecasting capabilities, reduction in storage costs (overhead), reduced labor costs, enhanced transparency improved supplier, vendor, and partner relationships.

- **Transport management**

Transportation activity refers to managing the movement of products(goods) and includes activities like selecting the tactic of shipment (air, rail, water, pipeline, or road, or a mixture thereof), choosing the particular route also named as routing, complying with various local, provincial and national transportation regulations and being attentive to both domestic and international shipping requirements. (Stock & Lambert, 2001).

A transportation management system (TMS) is additionally a subset of supply chain management (SCM) that deals with the look, execution, and optimization of the physical movements of products. In simpler terms, it is a logistics platform that permits users to manage and optimize the daily operations of their transportation fleets. TMS is obtainable as a module within enterprise resource planning (ERP) and SCM suites and helps organizations move inbound, procurement, outbound, shipment and freight using tools like route planning and optimization, load building, operations execution, freight audit and payment, yard management, order visibility, and carrier management. The last word goals of employing a TMS are to spice up shipment efficiency, reduce costs, gain real-time supply chain visibility, and enhance customer service. Typically, TMS serves both shippers and logistics service providers. Manufacturers, distributors, e-commerce organizations, wholesalers, retailers, and third-party logistics (3PL) companies are a form of the foremost important users of TMS software (Gartner, 2016)

- **Warehousing Management**

In most warehouses, information systems support warehouse management. Such information systems can be either built specifically for a warehouse (tailor-made) or bought off-the-shelf (standard software package). Software is primarily focused on broad or specific functionality (Lynch, 1985). A software product with broad functionality

supports a large number of different processes in an organization (e.g. an ERP system). Although Enterprise resource planning systems can be configured to the customer's processes, the fine-tuning is complex (Somers and Nelson, 2003), and configuring the system involves making compromises and has its limits (Davenport, 1998). Software products with specific functionality support a smaller number of processes in an organization but with more intensity (e.g. WMS). The specificity of the information system will differ per the warehouse. We define the construct information system specificity by distinguishing six different types of information systems with an ascending degree of specificity.

- **Procurement management**

Procurement management is defined as that a part of supply chain management that plans, implements, and controls the efficient, effective acquisition of all raw materials, semi-finished goods, finished goods, services, and data to support the core operations and ancillary activities of the organization. (Pienaar, 2010).

The primary objective of procurement is to produce companies with the materials and services needed to stay the efficiency of their operations at a high level. Procurement is that the business management function that ensures identification, sourcing, access, and management of the external resources that a corporation needs or might have to satisfy its strategic objectives. The uncertainty factors, like fluctuations of availability and price of the materials, have increased the importance of procurement, (Dobler and Burt, 2000).

2.1.2 The Role of Information system on Logistics management

The role of an information system is the Reduction of the costs of operational processes (manual work), Information quality enhanced by eliminating human errors, Rapid transfer of information between organizations. A system is important in supporting companies creating a strategic advantage by enabling centralized strategic-planning with day-to-day centralized operations. Anderson et al (1996).

A well-designed system might be a key element of logistics within the chain of managing, organizing, and operating in both profit and nonprofit organizations. The advantages of applying strategic management within the event of information

technologies contribute to the positive development of logistics functions during a corporation or institution as a complete. A prerequisite for successful logistics management is a systematic gathering of required business information. Today it's no longer possible to run a successful operation without a working system. A completely constructed system contributes essentially to an organization's competitive advantage. These opportunities are reflected in creating new, competitive advantage positions, in cost reduction and achieving a selected dependency differentiation in logistics operations, also as in better results of all the logistics functions within the given organization. (Kata Iviæ, 2008).

The basic goal of a system within logistics management is to create successful connections between suppliers, consumers, and competitors. Counting on the logistics management decision, the mode of constructing these connections is offensive or defensive. The essential aim is to realize comparative advantages through logistics. If logistics management is objective, this will lead to deciding that will contribute to the respectability of the purchasing function, competitive advantage within the provision chain, possible associations of suppliers, connecting logistics with consumers, determining the contribution of logistics to the organization's competitiveness. The knowledge system of logistics functions plays a task in making an accurate interpretation of the company's performance also. Strategic options of generators for the logistics information management must be continuously monitored, and usage of the latest options can improve the logistics functions within an organization. (Kata Iviae, 2008)

2.1.3 Logistics management performance measurement

According to the SCOR model, five performance attributes should be considered in assessing the performance of a logistics function in place. These performance attributes are delivery reliability, responsiveness, flexibility, and cost and asset management efficiency. The first three (delivery reliability, flexibility, and responsiveness) attributes are those facing towards customers while the next two (cost and asset management efficiency) are those facing towards the organization. Delivery reliability is about the performance of the logistics function in delivering the right product to the right beneficiary at the right time and right quantity. Responsiveness, on the other hand,

emphasizes the speed at which the logistics function provides products to the beneficiaries. Flexibility is about the ability in responding to changing demands in terms of both variety and volume. Cost stands for the costs associated with running the logistics function while asset management efficiency is about efficiency in managing assets to satisfy beneficiaries' demand (Thilakarathna, Dharmawardana, and Rupasinghe, 2015)

Performance measures play a crucial function in the management of any logistics organization (Griffis, Goldsby, Cooper, and Closs, 2007) and are of a particular rate to logistics managers. Performance dimension is considered as an avenue for logistics managers to achieve sustainable competitive gain (Gunasekaran and Kobu, 2007) by way of offering timely, reliable indicators of every overall performance successes and shortcomings (Griffis, Cooper, Goldsby, and Closs, 2004). Research in the vicinity of logistics average performance dimension supports this necessary function of performance measures and has concluded that success in the common overall performance of logistics activities and competencies is linked to elevated organizational performance (Fugate, Mentzer, and Stank, 2010).

Today's enterprise is attempting to provide clients with personalized products to win orders. With technological know-how development, commercial enterprise is applying software science to achieve this. The personalized product has been extra and extra diagnosed as an order winner. But the brilliant degree of varieties of merchandise will increase the furnish chain fee and affect the client service level. When extra organizations can offer the variety, the capability of grant chain handing over merchandise faster and efficient will emerge as the new order winner. To remain in business, an agency should usually subject its bottom-line. The supply chain ought to be formed with optimal sources to limit the cost. Only a profitable supply chain can continue to exist in the competition. In the framework, all the troubles have to be addressed. Considering the SW focused grant chain characteristics, we proposed three-dimension performance measurements: Reliability, Responsiveness, and Flexibility. (Vishal. V. J, 2015)

- **Reliability performance Measurement**

Reliability defines the right of 'knowing' for both logistics companion and customers. Customers need to know their order reputation to make the right selection or clearly to be

assured. This is a very vital part of customer satisfaction. The reliability is realized via integrating internal systems and trading partners in a zero-latency messaging environment, and enabling real-time reliability and performance monitoring on the movement of items and activities in the achievement community (both inbound and outbound). The reliability of logistics is determined via the data glide amongst logistics partners and customers. The developments of Information devices have enabled partners to change real-time reliability on the planning and execution of their respective logistics using a range of underlying messaging and dialogue techniques. (Vishal. V. J, 2015)

- **Responsiveness performance Measurement**

Responsiveness is defined as the ability of an organization to respond rapidly to changes in demand both in terms of volume and variety. Changes in demand may come in different ways, such as changes in volume, delivery dates, variety of products, production. A significant change in demand means that the change is not just a one-off peak demand or downtime situation. Therefore using up any slack in capacity, issuing overtime or subcontracting will not consistently solve the situation. The inventory may not be able to cover the changes. Additional arrangements with suppliers may have to be made. It needs to put long term solutions in place to be able to cope with a significant change in demand. Responsiveness is all about creating that responding and mastering the uncertainty. Responsiveness implies end-to-end time compression or postponement of final product configuration. It is very critical to SW-focused logistics as the demand for the services is more violate compare to other services. The focus in SW-focused logistics management may shift from cost saver as the order winner to responsiveness as the winner. The implication is that the emphasis in logistics management performance measurement must be on responsively. (Vishal. V. J, 2015)

- **Flexibility(Agility) performance Measurement**

Flexibility measures are different from resource and output measures in many aspects of the organization. (Stevenson and spring, 2007) indicate that flexibility could be a measure of the possible behavior of the organization, whereas other operational performance measures are demonstrated by the system's operating parameters. This means that flexibility doesn't must be demonstrated by the system to exist. Measuring something

which the system doesn't exhibit in its normal course is somewhat challenging. Therefore, in most cases, the contributing attributes that enable flexibility potential are measured to assess flexibility capableness. Many authors suggested frameworks for flexibility performance measurement, though there's little consensus within the different measurement frameworks suggested by different authors (Chen and Paulraj, 2004; Cho et al., 2012; Gill and Pabla, 2013). During this section, a number of the foremost widely quoted frameworks of supply chain flexibility performance measurement systems are reviewed.

2.1.4 Challenges of Information system adoption in logistics management practices

Any company that has undertaken the mission of implementing an integrated logistics management strategy with the use of information system tools knows that one of the greatest challenges it faces is the significant change in internal culture that is required to make the logistics redesign successful. It is difficult to re-condition people to accept change where a certain mindset has prevailed for many years. However it may be difficult to accomplish, change can be successfully implemented when directed by a knowledgeable and strong leader, who knows the tools available for achieving positive change, as well as their contribution to initiating and sustaining these changes. Integrating new applications with existing and legacy systems could also pose problems. Incompatible systems at buyer and vendor facilities are another management challenge to tackle. Data sharing with diverse stakeholders like suppliers and customers, filtering and mining data generated, and finding the "business" value of the data are other issues. Disconnected enterprise systems create data redundancy, errors, and can lead to costly business inefficiencies. (Anderson *et al* 1996)

According to Macleod (1994), supply chain managers increasingly want to automate all of the logistics operations, from forecasting to distribution, and to link every element of the chain. More and more companies want an integrated solution to enable them to see the entire supply chain at once. For example, they want to know that if they drill down to forecast, they can see the demand history, which is a combination of data that have come from sales order processing, inventory management, and the warehousing system. Van

Oldenburg (1994) says that the ability to reduce human intervention yet oversee minutely the flow of parts and products along the entire length of the supply chain can help dramatically in cutting logistics costs and boosting customer satisfaction. Unfortunately for many midsize companies in these times of economic recession, such clarity in global distribution remains largely restricted to major multinationals with deep pockets and volumes large enough to justify the hefty initial investment in the Information system that can run into millions of dollars.

Towill (1997) sums up "To survive, let alone win, a company must be part of one or more supply chains producing world-class performance". Hence companies need to work together and optimize the complete pipeline by establishing a seamless supply chain to maximize their market share. Only with this holistic chain concept can further significant and radical improvements in individual business performance be realized. Process manufacturers and Information system vendors are working to develop a filter to sift through the barrage of data from process control systems to move important information to higher-level Information systems.

- **Organizational Challenge**

A typical adoption of a knowledge system project could be a costly, time-consuming, and sophisticated undertaking. Many companies have described their Enterprise resource planning implementation being a nightmare. Chen (2001); in keeping with Goeun (2013) Despite the Information system's significant growth, there are a variety of challenges that organizations may encounter when adopting the knowledge system.

BooYoung (2007) stated many organization firms understand how beneficial information systems are, but they still hesitate to adopt these systems because of their high cost and risk. The foremost known challenges include resistance to alter from the staff, lack of support from the highest management, organizational culture, and lack of continuous training. This issue also noted by Goeun (2013) Information system adoption has its challenges like Lack of senior manager commitment, Ineffective communications with users, Insufficient training of end-users, Failure to induce user support, Lack of effective project management methodology, Attempts to create bridges to legacy applications,

Conflicts between user departments, Composition of project team members, Failure to revamp the business process and Misunderstanding of change requirements. Shanab, Shehab, and Khairallah (2015) Information systems are complex systems that face a high probability of failure.

- **Users Challenges**

Inadequate training has been one in each of the numerous reasons for the many Information systems failure (Gupta, 2000). In Information system adoption projects, despite several dollars and many deployment hours, many projects fail due to the dearth of adequate training (Kelley et al., 1999). A selected challenge in system adoption is to pick an appropriate plan for end-user training and education. It is, however, important to worry that the most goal of system training should be a good understanding of the varied business processes behind Information system applications (Gupta, 2000). System training should address all aspects of the system, be continuous, and supporting knowledge transfer principles wherever consultants are involved (Davenport, 1998).

Due to the complexity of the integrated system, end-user training is crucial for a strong understanding of how the system works and the way to use it. Consequently, appropriate end-user education and training will maximize the system benefits and increase user satisfaction. Organizations are required to take a position within the training and education of their employees to boost their skills and understanding of the new business processes, functions, and new responsibilities (Bingi et al., 1999). And to make sure that key knowledge is transferred from the consultants to the staff for the previous too, ultimately, reside within the organization. one in every of the prominent training challenges is that the difficulty in putting in place the specified training logistics, which incorporates selecting the correct facilitators to supply end-user training, providing adequate training to the facilitators themselves, putting in place training facilities with the correct infrastructure and therefore the preparation of quality training documentation (Kumar et al., 2003).

Training content is sometimes perceived as being inadequate with a scarcity of attention to detail, thus hampering the holistic understanding of how the data system functions. Moreover, the high demand for skilled professionals results in a high turnover of skilled

employees, leading to the constant have to train new employees. Moreover, the evolving nature of the data system ends up in the requirement for constantly updating the training materials and consequently the requirement for regularly retraining employees (Kumar et al., 2003).

- **Technological Challenges**

According to Themistocles *et al*. (2001), most companies face technical problems during installation, adoption, or after the adoption period. Integration with existing systems, customization, and security are the most serious problems for the companies. To deal with these problems, companies need support from suppliers both in terms of information technology expertise and domain knowledge. The cost of technology is one of the critical challenges for the adoption of information systems. Even though the price of prewritten software is cheap compared with in-house development, it observes that the total cost of implementation could be three to five times the purchase price of the software Monk & Wagner (2006).

2.1.5 Quality of ICT support services to the logistics management practices

The quality of ICT support services to the logistics management practices focuses on quality factors and quality attributes for this type of ICTS. A quality factor is defined as a measurement for ICTS by which to indicate the achievement or performance from the evaluation of the logistics management practices performance. Each factor may have a particular aspect for measuring the logistics management practices performance based on the determined metric, which is called a quality attribute. Quality factors and attributes are reviewed from previous literature and validated by practitioners during a preliminary study. (R.N.H. Nor, *et.al*. 2008).

2.1.5..1 Quality factors and attributes of logistics management practices

- **Reliability**

Reliability is the factor of quality of logistics management practices it gives the Service done within the time frame, working done within the reasonable time, service done

instantly, Service carried out such as is user wanted Service done correctly and professional, Service done efficiently especially in a critical period and Service done correctly in the first time.

- **Information supply**

Information supply is one of the qualities of logistics management practices it provides the information on IT usage guidance, it provides the information which helps to enhance the ICTS user knowledge, it provides the information which helps the ICTS users on their daily ICT tasks, it provides the information which can help the ICT community services user and Provide information on services status.

- **Responsiveness**

Responsiveness is the factor of the ICT quality of logistics management practices it has: to ensure the response was done instantly, immediate action on ICTS user request, always have a staff who's ready to assist and follow up the status of provided ICTS.

- **Technology Usage**

Technology usage one of the factors of the ICT quality of logistics management practices in technology uses has: to make use of IT on doing the ICTS, automation of work process which relevant, Stored ICTS data electronically, and Spread the ICTS information online.

- **Proactive**

Proactive is the factor of ICT quality of the logistics management practices for no need many requests from the user to take any action, Think what is the best for the customer, it Provide ICTS with value-added to a customer and Better ICTS beyond expectation.

2.2 Empirical Literature Review

2.2.1 The Role of Information System in the Inventory Management system

Inventory management is crucial to each company, having inventories. Companies have to have stock, but in such amount to avoid out-of-stock and overstock situations.

Inventory management can improve the company‘s internal control existing situation and reduce the costs of the corporate. The agent system, in turn, proposes the automation of this process, it can support several forecasting methods and it reacts to changes within the environment. during this paper, the present inventory management situation is analyzed, twofold improvement is proposed to use inventory management to decrease company‘s inventory level and holding costs by avoiding overstocks and to use the agent system to automate the inventory management processes and to timely react to demand deviations from the forecasted demand by making corrections in replenishment policies. In keeping with experiments, it is concluded that a timely reaction to changes within the environment can propose better results. (Darya Plinere, 2015).

This can be done by somebody's or decision web comparing the forecasted demand with real and making corrections in orders, or this could be done by an agent because it is proposed here. The subsequent step of this research is the appliance of achieved results of demand forecasts, safety stock and reorder points into simulation software to realize more accurate results. It’s widely accepted that firms can do effective inventory management with the correct strategies. This study analyzed the internal control strategies of small to medium-sized enterprises (SMEs) in Jamaica. The objectives of the study were to spot whether these companies used the simplest practices in internal control, the results of their strategies on business performance, and also the factors that affected the event of their strategies. Firms that will implement the correct internal control strategies to effectively hold the correct balance of inventory while keeping related costs at a minimum can enjoy a rise in financial performance. (Darya Plinere, 2015).

An objective of the research was to focus on the strategies of internal control and their impact on business performance. Without an investigation into the financial performance, because of expected reluctance from the SMEs, it's difficult to adequately determine whether the Strategies being employed were indeed successful in achieving higher financial performance. Nonetheless, this research has provided much insight into the number of IT investments in the inventory management of Jamaican firms. This information is very important provided that few articles have examined the kinds of automation utilized in Jamaican SMEs for internal control. The knowledge from this

research is also useful to ERP manufacturers to revamp or build systems tailored to Jamaican firms that supported the environmental and regulatory constraints. (Fashaya Johnson1 & Thanasak Ruankaew, 2017).

ERP manufacturers should address the restrictions that Jamaican SMEs experience and note that reproducing historical data may be a must-have ‘feature for these SMEs, and thus include this as a default feature within the development of any ERP system. This research is fitting and adds value to the broader assessment of internal control strategies in SMEs. An implication of this research comes from a reframing of two issues: the misuse of automation in SMEs, that's available but mostly underutilized, and also the incongruities of ITR as an appropriate measurement of inventory management performance. As a final implication, the findings of the study inspire new research into what's indeed the foremost appropriate measure of effective internal control for SMEs and the way to influence SMEs to form feasible investments in IT for benefits to be realized over the future. By way of institutionalism and also the mimetic isomorphic behavior among the SMEs, it's likely that with one in all two entities making larger investments in automation will create a benchmark that smaller and developing firms will adopt (Fashaya Johnson1 &Thanasak Ruankaew, 2017)

2.2.2 The Role of Information System in the Warehouse Management system

Companies nowadays are inserted in dynamic environments during which the inventory management becomes an item within the explore for the competitive advantage of organizations, compared to their competitors. (Hékis, 2013) illustrate that, after they rummage around for alternatives within the inventory management, some organizations have chosen to provide their products via distribution center. These environments, as components of a corporation, have to evolve, reduce cost, keep track of their results and still, have specialized in their clients ‘satisfaction.

Viana and Rodrigues Neto (2012) emphasize that "to keep themselves competitively within the market and achieve efficiency in logistics operations its essential the

deployment of an information system". To fulfill this informational demand, it's become increasingly the utilization of a data system that facilitates the situation of products, reduce errors and still meet the requirements of consumers in a very storehouse, warehouse or distribution center there are items with high obsolescence (Silva & Silva, 2013).

Arbach (2011) mention that the WMS enables the operational optimization through the rise of the operational competitiveness, optimization of spaces, rationalization of resources both for movement and storing, providing this fashion with an environment of increased productivity. to spot the advantages of using WMS, some studies have attempted to investigate theoretically their deployment because of the research developed by Pereira, Toquetti, Ricci, and Duarte (2010), Viana and Rodrigues Neto (2012) and Silva and Oliveira (2013). during this same line of thought, new studies have investigated the utilization or implementation of the system in centers of companies distribution (Silva, 2013), in organizations of the furniture sector (Costa & Gobbo Junior, 2008), the food segment (Martins, Brito, Freitas & Nunes, 2010; Arieira, 2012), within the textile sector (Hékis, 2013), in companies of supplies within the corporate market (Machado & Sellitto, 2012) or perhaps, within the perspective of reverse logistics (Guarnieri, Chrusciak, Oliveira, Hatakeyama & Scandelari, 2006).

The deployment and use of the WMS allied to new information technologies, when properly used, become a robust differential between organizations that crave the excellence in commission to their customers. During this way, organizations are increasingly seeking alternatives to facilitate the management of their activities, the rise up to the mark and also the obtaining of precise information, which can, of course, accelerate the method of higher cognitive process and thus improve the extent of service (Pereira, 2010). During this sense, it arises the central purpose of this research which is to do and describe the deployment of a system WMS (Warehouse Management System) of warehouse management, in a very distribution center and wholesaler of the segment of private hygiene and cleaning products

2.2.3 The Role of Information System in Transportation Logistics system

Effective operations of enterprises in almost every sector of the economy require well-functioning transport. The presented definition: "transport may be a set of activities associated with the movement of individuals and material goods by appropriate means. It plays an awfully important role in logistics, thanks to the product's movement and therefore the creation of additional services. Transport within the economic system enables the exchange of products and services. Transport raw materials and semi-finished products for production (in industry, construction, etc.) and finished products for private consumption‖ (Pracazbiorowa, 2008).

The primary function of its transport, which covers the amount within which the charge remains in the middle of transport, traffic and through parking. Additional activities are held within the transport collection point: loading, unloading, and storage of short-term or long-term loads. The transport together with the movement also includes additional services like logistics, freight forwarding, control, etc. These services are associated with the organization and management of the processes of movement, so are services that are intangible (Neider, 2006).

Transport management is that the most vital logistics thing. Costs related to transport are often quite one-fourth of the logistics costs (Kisperska-Moroń & Krzyżaniak, 2009). Transport managers within the company are answerable for the selections, whether to use their transport or external, particularly, are answerable for the selection of a specific carrier and therefore the specific route of transporting cargo. The worker must know the price of transport, the applicable rules of law in terms of rules and regulations concerning transportation, and can also manage human and financial resources. Managers should have relevance to the objectives of logistics and general business (Dima, Man & Vlăduţescu, 2012).

2.2.4 The Role of Information System in the procurement Logistics system

Effective procurement of enterprises in almost every sector of the economy requires e-Procurement could also be seen as early because the 1980s, with the evolution of material Requirements Planning (MRP) systems into Manufacturing Resource Planning (MRP II), Enterprise Resource Planning (ERP) systems have evolved continuously to reply to emerging requirements and advances in technology (Wang et al. 2005).

Moreover, Electronic Data Interchange (EDI) may be thought to be a mode of electronic procurement. Electronic procurement systems experienced a diffusion within the late 1990s (Puschmann and Alt, 2005) due to the proliferation and advances of data technology and thus the net, the tremendous potential savings achievable via this tool, and possibly also because of the fear associated with the Y2K issue. While companies were making experiences with this new technology, research articles aimed to capture what was happening, suggesting and testing relationships, and providing best practices, frameworks, and models. E-commerce generally refers to an inter-organizational system that's intended to facilitate B2B transmission, information exchange, and transaction support through the internet of either public access or private value-added networks (Min and Galle, 2003).

It can take a spread of forms like EDI, direct link-ups with suppliers, Internet, Intranet, Extranet, electronic catalog ordering, and e-mail (Gunasekaran and Ngai, 2004). While E-Procurement is that the reflection of e-commerce, they have many alternative aspects. For example, e-commerce often faces an oversized number of individual consumers, whereas E-Procurement usually involves dealings with companies (Johnson and Whang, 2002). The explosion of e-commerce over the past 5 years has been nothing wanting phenomenal, both in terms of the speed and thus the scope of change (Boyer and Olson, 2002).

2.3 Conceptual framework of the study

A conceptual framework may be defined as a collection of broad ideas and principles taken from relevant fields of inquiry and won't to structure a subsequent presentation (Reichel and Ramey, 1987). As may be seen, the figure below the conceptual framework shows the connection among variables under the study. Independent variables will present in Logistics management system practices of inventory management, warehouse management, transport management, and procurement management, and challenges of information system adoption, and therefore the dependent variable quantity is logistics management performance represented by Reliability, Responsiveness, and Flexibility (agility).

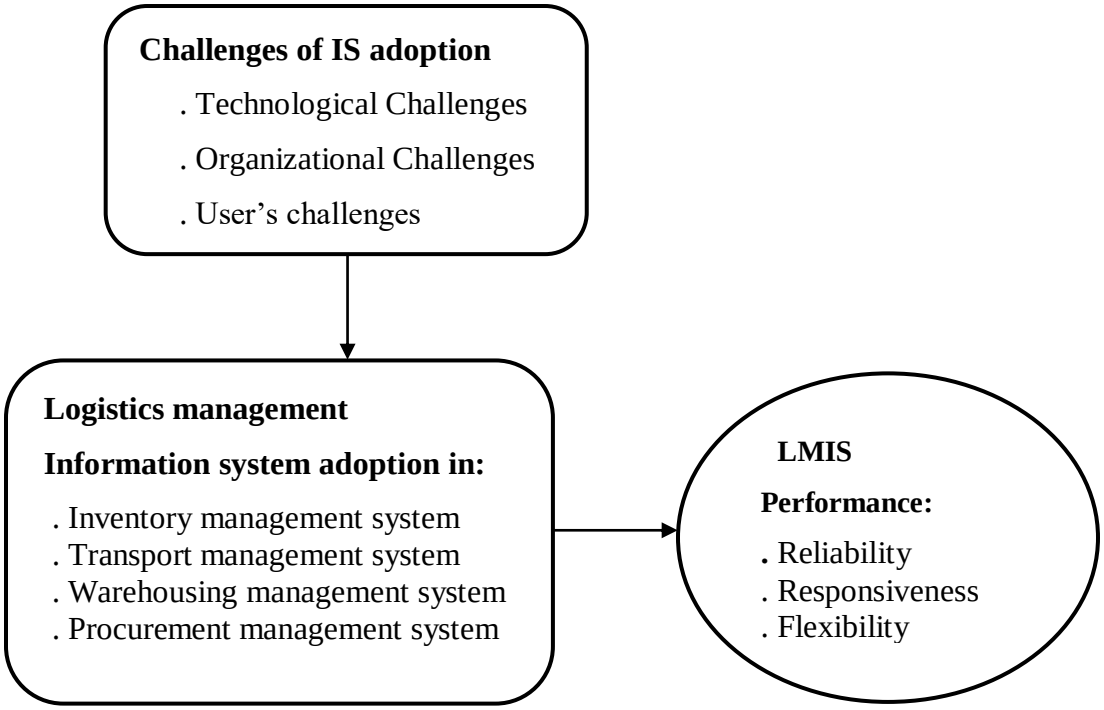

Figure 2. 1 conceptual framework

Source: Researcher (2020)

2.4 Literature Gap

The research gap is a problem that has not been addressed so far in a particular field. Several studies have focused on logistics management practices and logistics management performances but I couldn't find enough studies that have focused on the

logistics management performance and challenges of the adoption of logistics management system practices especially on the government enterprise sectors. The study assessing the role of an information system on the logistics management performance of ESLSE strove to examine measures that will be taken to the role of an information system on logistics management performance. This will provide appropriate recommendations on challenges facing the adoption of an information system on logistics management. The present assessment has contributed to the understanding of this system on logistics management performance and challenges.

CHAPTER THREE

3 METHODS OF THE STUDY

This chapter presents the research methodology will applying for the study specifically, on the research design, research approach, data collection, population, and sampling design, source of data, data presentation, and analysis, and in the end some ethical issues will explain.

3.1 Description of the Study Area

The study conducted in Ethiopian Shipping and Logistics Services Enterprise kality Inland transport and port and terminal branches. In general, Ethiopian Shipping and Logistics Services Enterprise is the only shipping Governmental organization in Ethiopia. It has headquarters located in the heart of Addis Ababa, Ethiopia, with main branches at Djibouti, Mojo, and Kality (the former Comet) and other branches in Mekelle, DireDawa, Kombolcha, Semera and Gelan and recently Wereta towns. It also has a Maritime Training Institute at a place called Babogaya in Bishoftu (former Debrezeit) Town. Out of the above location, the researcher has selected the Kality Inland transport branch and Kality port and terminal respectively. The reasons for selecting the study areas in Addis Ababa, to get more information on the topic of the research.

3.2 Research Design

The purpose of this study was to assess the role of information systems in logistics management performance. A research design is a general framework of how the researcher intends to go about answering the research questions. Depending on the objectives of the study, the paper used both descriptive research and explanatory design. According to Kothari (2004), descriptive research studies are those studies that are concerned with describing the characteristics of a particular individual, or of a group, to assess the status of logistics management information system using frequencies, mean and standard deviation. The explanatory approach was used to study the role of

information system on logistics management performance of ESLSE (Ethiopian Shipping and logistics services Enterprise).

3.3 Research Approach

To achieve the specific and general objectives of the study, a quantitative research approach is used. According to Creswell (2003), the use of the approaches is tandem so that the overall strength of the study is greater than either qualitative or quantitative research. According to Creswell (2009), qualitative research was a means for exploring and understanding the meaning of phenomenon from the view of participants. On the other hand, the quantitative approach employs strategies of inquiry such as experiments and surveys and collects data on predetermine instruments that yield numeric data that has been analyzed using statistical procedures and it is a means for testing objective theories through examining the relationship among variables.

3.4 Data Collection

To achieve its objectives the research was based on both primary and secondary data. The secondary data collected from the company's work processes, policies, procedures, forms, and other documents which are link with the logistics management practices and also from different works of literature on the area.

The primary data collected through the questionnaire. It includes open-ended and close-ended questions. This instrument of data collection is quite popular, particularly in the case of big inquiries (Kothari, 2004).

3.5 Population of the study

As discussed on the scope, this study only collected data from Inventory management, Procurement Management, Transport management Warehouse management, and ICT in Addis Ababa Kality Inland transport branch and Kality port and terminal branch. The researcher has selected the population of employees by working area in their department; based on the criterion the total number of the population under the study includes a total of 94 staff.

Table 3-1 Population Size

ESLSE staff Representative	Types of division					
	Inventory	**Procurement**	**MS**	**ICT**	**Transport**	**Total population**
Managers	1	1	1	1	1	5
Staffs	23	5	27	5	29	89
TOTAL						**94**

Source: Own survey (2020)

3.6 Sample Design

In different circumstances, researchers question how large a sample size they should use to make the sample representative of the population. In reality, how large a sample should be a function of the variation in the population parameters under study and the estimating precision needed by the researcher (Cooper and Schindler, 2003)?

For this specific research, the researcher has used a proportionate stratified sampling from the probability sampling technique to get a representative sampling and again due to its homogenous characteristics of the population within the strata. The sample size of this study is determined by using the formula developed by Taro Yamane (1967);

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

Where **n** is the sample size

N is the population size,

E is the level of precision or sampling error = (0.05)

$$N = \frac{94}{1 + 94 (.05)\, 2} \approx 76$$

3.7 Data Presentation and Analysis

Both qualitative and quantitative measurements were used for this research. The collected data were analyzed by using descriptive statistics mainly using frequency, percentage, and mean. The inferential analysis techniques were used to the correlation and regression test.

3.8 Validity and Reliability Test

3.8.1 Validity Test

To ensure the quality of this research design content of the research instrument was checked. The content validity was verified by the advisor of this research who looks into the appropriateness of questions and the scales of measurement. Group discussions with other researchers were also conducted since it is another way of checking the appropriateness of questions. This was done to find out whether the developed instruments measured what it was mean to measure and also to check the clarity, length, structure of the questions.

3.8.2 Reliability Test

The test of data reliability is another important test of sound measurement. A measuring instrument is reliable if it provides consistent results, (Kothari, 2004). Moreover, a reliable measuring instrument does contribute to validity. Hence, to prove the reliability of the instrument, the researchers have distributed some questionnaires as a pilot test and then make some adjustments accordingly. The reliability of the questionnaire was checked by the Cronbach ‘s - Alpha test coefficient using SPSS software ≥ 0.70 was set as an acceptable measure of reliability. (Sekaran, 2003). For better consistency, the current study was used 0.7 as a minimum value of Cronbach's alpha and the results are presented. And the overall value is 0.847 which implies the questionnaire was reliable.

3.9 Ethical Issues and Confidentiality

The study is in line with the organization's policy in, relation to any intellectual property rights of the ESLSE Company, regarding the privacy of the respondents, their responses are strictly confidential and only used for research purposes, it cannot be ethical to access some confidential documents of the company so that the organization‘s code of ethics was taken into account without significantly compromising the findings of the study and Concerning references, all the materials, and sources was properly acknowledgeable.

CHAPTER FOUR

4 DATA ANALYSIS, INTERPRETATION and DISCUSSION

The findings of the study are presented in this chapter. Necessary discussions of the findings are also made to establish understanding and to show relationships among variables with literature and the research objectives. The data gathered was analyzed using SPSS version 20. Data were sorted and ranked according to the mean values to be dealt with descriptively to provide insight into the role of information system on the logistics management and ICT service provider performance in Ethiopian shipping and logistics services enterprise.

4.1 Response Rate

Responses were gathered from the staff of ESLSE‟s Kality Inland transport and port and terminal branches. (71) Responses altogether were gathered out of the seventy-six (76) questionnaires administered. This represented 93% is that the response rate i.e. From the number of questionnaires distributed to every group, Inventory (18), Transportation (29), warehouse (21), Procurement (4) and ICT (6), The all 71 responses 16 for inventory, 27 for Transport, 20 for warehouse, 5 for procurement, and 3 for ICT with a response rate of twenty-two.5%, 38%, 28.2%, 7%, and 4.2% were received respectively. The rate is high in step with the argument of Saunders et al. (2009) that sets a response rate above 80% is adequate.

4.2 Results

4.2.1 Demographic Respondent profile

Table 4-1 Demographic Characteristic of the respondents

NO.	Demographics of the Respondent		Frequency	%
1	Gender	Male	47	66.2
		Female	24	33.8
2	Age(year)	Below 25	9	12.7
		26 - 35	30	42.3
		36 - 45	22	31
		Above 45	10	14
3	Marital status	Single	18	25.4
		Married	53	74.6
		Divorced	-	-
		Separated	-	-
4	What is the level of Education	Grade 1 - 12	2	2.8
		Certificate Holder	5	7
		Diploma Holder	13	18.3
		Degree Holder	48	67.6
		Master Degree Holder	3	4.2
5	How long have you been working in this company?	Less than 5 years	17	23.9
		5-10 years	24	33.8
		11-15 years	20	28.2
		More than 15 years	10	14.1
6	In which process, department or unit are you working at ESLSE?	Inventory	16	22.5
		Transport	27	38
		Warehouse	20	28.2
		Procurement	5	7
		Other	3	4.2

Source: own survey (2020)

As per the gender of staff employee results, there were 47 male and 24 female respondents. This means as shown by 66.2% and 33.8% respectively. The results show that the majority of the respondents (42.3%) were age between 26-35 years. The least number of respondents (12.7%) were below 25 years. The rest of the respondents who were between 36-45 years represented 31% whereas the respondents who were at the age of 45 and above were 14%. This possibly suggests that the inland transport and port and terminal branch at kality employed more staff who are below 45 years of age.

From the total of the respondents of the employees, marital status 74.6 % were married while the rest of 25.4 % were single, the finding shows that most of the respondents were married.

The results show that the majority of the respondents 67.6 % have attained a degree, 18.3% have attained diploma, 7% have certificate while the least have attained between 1- 12 grades 2%. The rest of the respondents were postgraduate degrees 4.2 %. The findings indicate that ESLSE employees the majority of them obtained a Bachelor's degree in education. The result showed 33.8% of the employees have between 5 up to 10 years' experience, 28.2% shows have between 11 to 15 years, 23.9 % shows have below 5 years and 14.1% of the employees were more than 15 years of experience which shows most of the employees were much experience in ESSLE.

4.3 Descriptive analysis of Logistics management Practices of ESLSE

- **Descriptive statistics of the respondent**

The descriptive part presents respondents' responses in tables using mean and standard deviation. And all the variables are presented in detail.

Table 4-2 Descriptive statistical analysis of the logistics management practices

LMIS Practices	Questions	X	SD
Inventory Management	ESLSE's inventory planning and management technology are operated by skilled manpower.	**1.93**	**.884**
	ESLSE's inventory planning and management are supported by technology.	**1.85**	**.873**
	The inventory model used to determine the quantity ordered is based on real demand analysis in the enterprise.	**1.97**	**1.055**

System	ESLSE's inventory optimization system is integrated with the ERP system.	**1.82**	**.833**
Grand mean Inventory management system practices		**1.89**	**.911**
Transport management system	The Transportation Management System of ESLSE is integrated with ERP and other systems.	**1.9**	**.897**
	ESLSE's applied Transport Management system for vehicle scheduling, tracing, and tracking practices.	**2.96**	**1.152**
	The transportation Practices of the enterprise is supported by technology to satisfy customers by timely and safely delivery of goods and as well as services.	**3.04**	**1.458**
	GPS technology for vehicle tracking system with a fleet and fuel management system is Practiced at ESLSE.	**2.38**	**1.033**
Grand mean of Transport management system practice		**2.569**	**.843**
Warehouse Management System	ESLSE`S warehouse is supported by technology.	**2.79**	**1.341**
	The warehouse operators are skilled to use a computer and other technologies to perform warehouse activities in ESLSE	**2.59**	**1.237**
	The enterprise has information communication technologies (E-ordering) and database systems for facilitating ordering practices.	**1.99**	**1.102**
Grand mean of Warehouse management system practices		**2.455**	**.984**
Procurement Management System	ESLSE`S Procurement is supported by technology.	**2.58**	**1.155**
	The procurement officers are skilled to use a computer and other technologies to perform e-procurement activities with suppliers in ESLSE.	**1.73**	**.755**
	The enterprise has an information communication technologies (E-procurement) and database systems to facilitating the purchasing practices	**2.72**	**1.044**
Grand mean of Procurement management system practices		**2.343**	**.799**

Source: Own survey (2020).

Descriptive Analysis of information system on Logistics management practices in ESLSE.

The descriptive statistics result of the SPSS analysis for the research findings revealed that from 1 to 2.8 disagree, from 2.81 to 3.2 neutral while from 3.21 to 5 is agree therefore the overall mean of the Inventory management practice in ESLSE is 1.89 and a standard deviation of 0.667. The first parameter in the questionnaire was about the Inventory management system practice in terms of ESLSE's inventory planning and management technology is operated by skilled manpower resulted in a 1.93 mean and 0.844 standard deviation while the Inventory management practice in terms of ESLSE's inventory planning and management is supported by technology resulted in 1.85 mean result and standard deviation of 0.873.

The other parameter related to Inventory management practice in terms of The inventory model used to determine the quantity ordered is based on real demand analysis in the enterprise resulted in a mean result of 1.97 and standard deviation of 0.1.055 while the other parameter related to the Inventory management practice in terms of ESLSE's inventory optimization system is integrated with ERP system resulted in a mean result of 1.82 and standard deviation of 0.833. The respondent responses the all inventory management practices have disagreed.

For the other parameter for Transport management practice, which is transport, the mean result in terms of The Transportation Management System of ESLSE is integrated with ERP and another system resulted in a mean result of 1.90 and standard deviation of 0.89 it shows that the respondents response disagree ,ESLSE's applied Transport Management system for vehicle scheduling, tracing and tracking practices resulted in 2.96 for the mean and 1.152 for the standard deviation, The transportation Practices of the enterprise is supported by technology to satisfy customers by timely and safely delivery of goods and as well as services resulted as 3.04 for the mean and 1.458 for the standard deviation, GPS technology for vehicle tracking system with fleet and fuel management system is Practiced at ESLSE revealed as 2.38 for the mean and 1.033 for the standard deviation, the overall mean 2.56 and the standard deviation of .842, therefore the respondent responses the transport management practices have disagreed.

As can be shown, for the other parameter for Warehouse management practice, which is a warehouse, the mean result in terms of ESLSE`S warehouse is supported by technology. resulted in a mean result of 2.79 and standard deviation of 1.341, The warehouse operators are skilled to use a computer and other technologies to perform warehouse activities in ESLSE resulted in 2.59 for the mean and 1.237 for the standard deviation, The enterprise has an information communication technologies (E-ordering) and database systems to facilitating ordering practices resulted as 1.99 for the mean and 1.102 for the standard deviation, the overall mean 2.45 and the standard deviation of .984, therefore the respondent responses the warehouse management practices have disagreed.

For the other parameter for procurement management practice, which is procurement, the mean result in terms of ESLSE`S Procurement is supported by technology. Resulted in a mean result of 2.58 and standard deviation of 1.155, The procurement officer is skilled to use a computer and other technologies to perform e-procurement activities with suppliers in ESLSE resulted in 1.73 for the mean and .755 for the standard deviation, The enterprise has an information communication technologies (E-procurement) and database systems to facilitating the purchasing practices resulted as 2.72 for the mean and 1.044 for the standard deviation, the overall mean 2.34 and the standard deviation of .798, therefore the respondent responses in the procurement management practices have disagreed.

4.4 Analysis of the role of IS on the LM performance of ESLSE

- **Descriptive statistics of the respondent**

Table 4-3 Descriptive analysis of the role of IS on logistics management performance

Performance Dimension	Questions	X	SD
Reliability Dimension	The Transport management information system of the ESLSE's increased the reliability of the Transport management practices performance.	**2.70**	**1.188**
	The Warehouse management information system of the ESLSE's increased the reliability of the Warehouse management practices performance.	**2.85**	**1.226**
	The Procurement management information system of the ESLSE's increased the reliability of the Warehouse management practices	**3.41**	**1.348**

	performance.		
	The inventory management information system of the ESLSE's increased the reliability of the inventory management practices performance	**2.20**	**.980**
Grand mean of Reliability Dimension		**2.7887**	**.861**
Responsiveness Dimension	The Transport management information system of the ESLSE's increased the responsiveness of the Transport management practices performance.	**2.58**	**1.155**
	The Warehouse management information system of the ESLSE's increased the responsiveness of the Warehouse management practices performance.	**1.73**	**.755**
	The Procurement management information system of the ESLSE's increased the responsiveness of the Warehouse management practices performance.	**2.72**	**1.044**
	The inventory management information system of the ESLSE's increased the responsiveness of the inventory management practices performance	**3.52**	**1.040**
Grand mean of Responsiveness Dimension		**2.637**	**.7243**
Flexibility Dimension	The Transport management information system of the ESLSE's increased the flexibility of the Transport management practices performance.	**2.86**	**1.291**
	The inventory management information system of the ESLSE's increased the flexibility of the inventory management practices performance	**2.20**	**.980**
	The Warehouse management information system of the ESLSE's increased the flexibility of the Warehouse management practices performance.	**2.24**	**1.035**
	The Procurement management information system of the ESLSE's increased the flexibility of the Warehouse management practices performance.	**3.14**	**1.222**
Grand mean of Flexibility Dimension		**2.9577**	**.9527**

Source: Own survey June 2020

Descriptive analysis of the role of information system on the Logistics management performance of ESLSE

- **Reliability performance dimension**

The descriptive statistics result of the SPSS analysis for the research findings revealed that rule of from 1 to 2.8 disagree, from 2.81 to 3.2 neutral while from 3.21 to 5 is agree therefore the grand mean of the Reliability dimension was 2.79 and a standard deviation of 0.861. The first parameter in the questionnaire was The Transport management information system of the ESLSE's increased the reliability of the Transport management practices performance. Resulted in a 2.70 mean and 1.188 standard deviations while The Warehouse management information system of the ESLSE's increased the reliability of the Warehouse management practices performance resulted in 2.85 mean results and standard deviation of 1.226.

The other parameter related to The Procurement management information system of the ESLSE's increased the reliability of the Warehouse management practices performance resulted in a mean result of 3.41 and standard deviation of 1.348 while the last other parameter related to the reliability dimension in terms of The inventory management information system of the ESLSE's increased the reliability of the inventory management practices performance resulted in a mean result of 2.20 and standard deviation of 0.980. This implies that The respondent responses The Procurement management information system of the ESLSE's increased the reliability of the Warehouse management practices performance only agree the other was disagree.

- **Responsiveness performance dimension**

The grand mean of the Reliability dimension was 2.64 and a standard deviation of 0.724. The first parameter in the questionnaire was The Transport management information system of the ESLSE's increased the responsiveness of the Transport management practices performance. Resulted in a 2.58 mean and 1.155 standard deviations while The Warehouse management information system of the ESLSE's increased the responsiveness of the Warehouse management practices performance resulted in 1.73 mean result and standard deviation of .755.

The other parameter related to The Procurement management information system of the ESLSE's increased the responsiveness of the Warehouse management practices performance resulted in a mean result of 2.72 and standard deviation of 1.044 while the last other parameter related to the responsiveness dimension in terms of The inventory management information system of the ESLSE's increased the responsiveness of the inventory management practices performance resulted in a mean result of 3.52 and standard deviation of 1.040. This implies that The respondent responses The inventory management information system of the ESLSE's increased the responsiveness of the inventory management practices performance only agree the other was disagree.

- **Flexibility performance dimension**

The grand mean of the Reliability dimension was 2.96 and a standard deviation of 0.952. The first parameter in the questionnaire was The Transport management information system of the ESLSE's increased the flexibility of the Transport management practices performance. Resulted in a 2.86 mean and 1.291 standard deviations while The Warehouse management information system of the ESLSE's increased the flexibility of the Warehouse management practices performance resulted in 2.20 mean result and standard deviation of .980.

The other parameter related to The Procurement management information system of the ESLSE's increased the flexibility of the procurement management practices performance resulted in a mean result of 2.24 and standard deviation of 1.035 while the last other parameter related to the flexibility dimension in terms of the inventory management information system of the ESLSE's increased the flexibility of the inventory management practices performance resulted in a mean result of 3.14and standard deviation of 1.222. This implies that the respondent responses the procurement management information system of the ESLSE's increased the flexibility of the inventory management practices performance were neutral the other was disagree.

4.4.1 Challenges hindering the adoption of an information system on LM practice.

The respondent values were assigned to mean and standard deviation. Under the challenges of hindering the adoption of information systems on logistics management practices, there are three variables namely; Technological challenge, Organizational challenge, and User challenge the responses of each of the variables are presented and described below.

- **Descriptive statistics of the respondent**

Table 4-4 Descriptive statistical analysis of challenges of ICT adoption

Challenges of IS adoption	Questions	X	SD
Technological Challenge	Use of Poor technology infrastructure in the ESLSE negatively affected the adoption of an information system on logistics management practices	**2.44**	**.691**
	Data integration problem in ESLSE negatively affected the adoption of an information system on logistics management practices	**2.93**	**1.269**
	The high cost of system implementation in ESLSE negatively affected the adoption of an information system on logistics management practices	**1.93**	**.640**
Grand mean of Technological Challenges		**2.4319**	**.7651**
Organizational Challenge	Turnover of key personnel in ESLSE negatively affected adoption of information system on logistics management practices	**2.72**	**1.300**
	Lack of personnel training in the ESLSE negatively affected the adoption of an information system on logistics management practices	**2.92**	**.996**
	Lack of end to end user in the ESLSE negatively affected the adoption of an information system on logistics management practices	**2.69**	**1.178**
	Poor communication and feedback systems in the organization negatively affected the adoption of an information system on logistics management practices.	**3.15**	**.951**
	Lack of awareness in the organization on the adoption of negatively affected the adoption of information systems on logistics management practices.	**3.07**	**1.100**

Grand mean of Organizational challenges		**2.9099**	**.7512**
Users Challenge	Weak users adaptability of the system in ESLSE negatively affected the adoption of an information system on logistics management practices	**3.52**	**1.040**
	Lack of users involvement on system adoption in ESLSE negatively affected the adoption of an information system on logistics management practices	**2.55**	**1.381**
	Poor conceptual knowledge users about the new system in ESLSE negatively affected the adoption of an information system on logistics management practices	**2.52**	**1.040**
Grand mean of Users Challenges		**2.8638**	**.9521**

Source: Own Survey June 2020

Descriptive analysis of challenges hindering the adoption of an information system on the logistics management practices in ESLSE

- **Technological Challenges**

The respondents were asked for their opinion about "Use of Poor technology infrastructure in the ESLSE negatively affected adoption of information system on logistics management practices or not?" As shown in table 4.4 the findings disclose that the respondents mean 2.44 disagree or strongly disagree on the above question. The other parameter that the data integration problem in ESLSE negatively affected the adoption of an information system on logistics management practices. The mean value was 2.93 indicates that the respondents do not agree with the idea that the data integration problem in ESLSE negatively affected the adoption of an information system on logistics management practices. The other parameter indicates 1.93 mean that the high cost of system implementation in ESLSE negatively affected the adoption of an information system on logistics management practices the respondents disagreed that the high cost of system implementation in ESLSE not negatively affected the adoption of an information system on logistics management practices.

- **Organizational Challenges**

The respondents were asked for their opinion about "Turnover of key personnel in ESLSE negatively affected adoption of information system on logistics management

practices or not?" As shown in table 4.4, the findings disclose that the mean value 2.72 indicated that the respondent responses disagree or strongly disagree on the above question. The mean value of 2.92 shows neutral that lack of personnel training in the ESLSE negatively affected the adoption of an information system on logistics management practices.

The mean value 2.69 indicates that the respondents do not agree with the idea that the Lack of end to end user in the ESLSE negatively affected the adoption of an information system on logistics management practices. The mean value 3.15 indicates that the respondent neutral with the idea that Poor communication and feedback system in the organization negatively affected the adoption of an information system on logistics management practices and the (X=3.07) also neutral that Lack of awareness in the organization on the adoption of negatively affected adoption of information system on logistics management practices.

- **Users Challenges**

The respondents were asked for their opinion about "Weak users adaptability of the system in ESLSE negatively affected the adoption of an information system on logistics management practices or not?" As shown in table 4.4, the findings show that the mean of 3.52, the respondent's responses agree or strongly agree on the above question. The mean value 2.55 indicates that the respondents do not agree with the idea that the lack of user involvement in system adoption in ESLSE negatively affected the adoption of an information system on logistics management practices. The (X=2.52) disagreed that the idea of Poor conceptual knowledge users about the new system in ESLSE negatively affected the adoption of an information system on logistics management practices.

4.4.2 The Quality of ICT Support Services Provided to the LM practices.

The respondent values were assigned to mean and standard deviation. Under the quality of ICT support services provided to the logistics management, there are five variables namely; Reliability, Information supply, Responsiveness, Technology Usage, and Proactive. The responses of each of the variables are presented and described below.

- **Descriptive statistics of the respondent**

Table 4-5 Descriptive statistical analysis of the Quality of ICT provider

Quality of ICT provider	**Questions**	**X**	**SD**
Reliability	ICT services are provided to the logistics management practices with the time frame in ESLSE.	**3.20**	**.935**
	ICT Support Service is provided to the logistics management practices within a reasonable time in ESLSE.	**2.79**	**1.351**
	ICT support service is provided to the logistics management practices correctly and professionally in ESLSE.	**2.79**	**1.576**
Grand mean of Reliability		**2.9249**	**1.0619**
Information supply	ICT service is provided to the logistics management practices to provide information on IT usage guidance in ESLSE.	**3.07**	**1.100**
	ICT service is provided to the logistics management practices to provide the information which helps to improve the user Knowledge.	**2.89**	**1.260**
	ICT service is provided to the logistics management practices **t**o provide the information, which helps the user on their daily task.	**2.86**	**1.257**
Grand mean of Information Supply		**2.9390**	**.9666**
Responsiveness	ICT support service is provided to the logistics management practices have immediate action to respond to a request from any department in ESLSE.	**2.04**	**1.114**
	ICT support service is provided to the logistics management practices always has staff who ready to assist any department in ESLSE.	**2.79**	**.773**
	ICT support service is provided to the logistics management practices and has followed up the schedule on the status of ICT in any department of ESLSE.	**3.06**	**1.107**
Grand mean of Responsiveness		**2.6291**	**.9007**
Technology Usage	ICT support service is provided to the logistics management practices is strong in improving users adaptability of the system in ESLSE	**2.59**	**1.283**
	ICT support service is provided to the logistics management practices engages users involvement on system adoption in ESLSE	**3.25**	**.952**
	ICT support service is provided to the logistics management practices enhances the technical and	**2.63**	**1.210**

	conceptual knowledge of users about the new system in ESLSE		
Grand mean of Technology Usage		**2.8263**	**.9290**
Proactive	ICT support service is provided to the logistics management practices with no need for a request from users to take action in ESLSE.	**2.73**	**1.218**
	ICT support service provide ICTS with value-added to a customer in ESLSE	**3.18**	**1.175**
	ICT support service always thinks about what the best is for the customer in ESLSE.	**2.82**	**1.234**
	ICT support service is provided to the logistics management practices capable to forecast and predict the output of logistics practices	**2.76**	**1.165**
	ICT support service is provided to the logistics management practices is helpful to plan a monitor users daily activity	**3.15**	**.951**
Grand mean of Proactive		**2.9296**	**.7900**

Source: Own survey June 2020

Descriptive statistical analysis and discussion The Quality of ICT Support Services Provided to the Logistics Management practices.

The Quality of level of ICT provider was assessed using five indicators namely Reliability, Information supply, technology usage, Responsiveness, and proactive. Based on the analyzed data table 4.6 information supply was found to be ranked first with a mean result of 2.94 followed by Proactive with a mean result of 2.93. Reliability was ranked third-ranked 2.92 while Technology usage and Responsiveness were ranked fourth and fifth in the row with grand means of 2.82 and 2.63 respectively.

The grand mean for information supply is much closer to 3.0 which tells those respondents neutral to favor the indicator. The grand mean for proactive, reliability, and responsiveness also shows a result closer to neutral, and hence respondents realize that more of them were for the quality of ICT support services provided to the logistics management practices neutral about the giving service while the rest of them disagreed.

- **Logistics management performance of ESLSE**

The respondent values were assigned to mean and standard deviation. Under logistics management information system performances there are three variables namely;

Reliability, Responsiveness, and Flexibility the responses of each of the variables are presented and described below.

- **Descriptive statistics of the respondent**

Table 4-6 Descriptive statistical analysis of Logistics management performance

LMIS performance	Questions	X	SD
Reliability	The Logistics management information system of the ESLSEs has the ability to perform tasks on-time in terms of On-time arrival and On-time departure	**2.00**	**.910**
	The Logistics management information system of the ESLSEs has the ability to perform tasks with the right quantity.	**2.38**	**1.047**
	The Logistics management information system of the ESLSEs has the ability to perform tasks with the right quality (claims-free shipment, damage-free shipment, the very high distance between accidents, perfect delivery, and perfect route)	**2.39**	**1.222**
Grand mean of Reliability		**2.2582**	**.789**
Responsiveness	The Logistics management information system of the ESLSE has the ability to perform tasks with high responsiveness with less in-transit time variability.	**3.00**	**1.254**
	The Logistics management information system of the ESLSE has the ability to perform tasks with high responsiveness with less Vehicles load/unload time.	**3.37**	**1.198**
	The Logistics management information system of the ESLSE has the ability to perform tasks with high responsiveness with less detention time.	**3.14**	**1.222**
	The Logistics management information system of the ESLSE has the ability to perform tasks with high responsiveness with less delayed in traffic time	**2.77**	**1.692**
Grand mean of Responsiveness		**3.0704**	**.9839**
Flexibility	The Logistics management information system of the ESLSE can help the employee to handle customer's requests.	**3.08**	**1.092**
	The Logistics management information system of the ESLSE can help the employees understand the customer-specific needs.	**2.90**	**1.255**

	The Logistics management information system of the ESLSE can help to reduce the complaints on the goods and services delivery.	**2.89**	**1.260**
Grand mean of Flexibility		**2.9577**	**.9527**

Source: Own survey (2020)

Descriptive statistical analysis and discussion of the logistics management information system performance

The logistics management information system performance was assessed using three indicators namely reliability, responsiveness, and flexibility. Based on the analyzed data of table 4.6, responsiveness was found to be ranked first with a mean result of 3.07 followed by flexibility with a mean result of 2.96 while reliability was ranked third means of 2.26. The grand mean for responsiveness is better than from two of them which tell those respondents neutral to favour the indicator. The grand mean for reliability and flexibility shows a result closer to disagreement; hence respondents perceive that the services provided by the organization are not reliable and flexible.

4.5 Linearity Assumption

Linearity is defined as the variable (dependent) as a linear function of the predictor (independent) variables. Standard multivariate analysis can only accurately estimate the link between dependent and independent variables if the relationships are linear. As there are many instances within the social sciences where non-linear relationships occur, it's essential to look at analyses for non- linearity. If the link between independent variables and also the dependent variable isn't linear, the results of the multivariate analysis will under-estimate verify the relationship.

This underestimation carries two risks: increased chance of a type II error for that independent variables, and within the case of multivariate analysis, an increased risk of Type I errors (over-estimation) is for other independent variables that share variance thereupon independent variables. If linearity is violated all the estimates of the regression including regression coefficients, standard errors, and tests of statistical significance are also biased (Keith, 2006). The study conducted curve estimation for all

the relationships within the model and every one the relationships were sufficiently linear to be tested employing a covariance-based structural equation modeling algorism

4.6 Model Test

4.6.1 Multicollinearity Assumption

Multicollinearity refers to the idea that the independent variables are uncorrelated. The researcher can interpret regression coefficients because of the effects of the independent variables on the dependent variables when collinearity is low. This suggests that we will make inferences about the causes and effects of variables reliably.

Multicollinearity occurs when several independent variables correlate at high levels with each other, or when one variable could be a near-linear combination of other independent variables. The more variables overlap (correlate) the less able researchers can separate the results of variables (Keith, 2006). If this assumption isn't satisfied, autocorrelation is present. Multicollinearity may end up in misleading and weird results, inflated standard errors, reduced power of the regression coefficients that make a necessity for larger sample sizes (Jaccard *et al*., 2006; Keith, 2006).

The widely used technique of identifying the existence of multicollinearity is calculating the variance inflation factor (VIF) between all independent variables. The VIF is an index of the quantity that the variance of every parametric statistic is increased over that with uncorrelated independent variables (Keith, 2006). When a variable features a strong linear association with other predictor variables, the associated VIF is large and is evidence of multicollinearity (Shieh, 2010). A rule of thumb of collinearity VIFs is 3.0 or lower to suggest no multicollinearity within the model (Kock, 2013). As may be seen in the table below, the study calculated VIF for all independent variables in SPSS and therefore the results revealed that each one of the VIF results is below the brink of 10.0 indicating there's no multicollinearity problem for the data.

- **Multicollinearity Test**

Table 4-7 Multicollinearity Test of the independent variable

Variable	Tolerance	V I F
Inventory management	.489	2.047
Transport Management	.282	3.542
Warehouse Management	.210	4.754
procurement Management	.614	1.629
Technical challenges	.308	3.245
Organizational challenges	.775	1.290
User`s challenges	.892	1.121

Source: Own survey (2020)

4.7 Results: Model Fit

There are one statistical linear regression models as there are one dependent variable and seven independent variables. A model fit index of every model is presented below. Model slot in regression models may be seen from different perspectives and one among these is that the value of R-squared. The model is assumed to be fit when the R-squared value is higher. R-squared may be a goodness-of-fit measure for statistical linear regression models. This statistic indicates the proportion of the variance within the dependent variable that the independent variables explain collectively. R-squared measures the strength of the link between your models and also the variable quantity on a convenient 0 – 100% scale.

Model 1: R-square summary of the model

Table 4-8 The dependent variable of logistics management performance summary

Model	R	R square	Adjusted R square	Std. Error of the Estimate	Durbin-Watson
1	.797	.635	.594	.45270	1.727

As can be seen in the above table, all of the models are fit as they have higher R-squared value.

4.8 Correlation Analysis

To facilitate an inferential analysis of the relationship between independent variables logistics management system practices and Challenges hindering the adoption of information system and dependent variable logistics management performance (Reliability, Responsiveness, Flexibility, or Agility) of ESLSE.

4.8.1 The relationship among LMS, Challenges and LM performance.

Pearson Correlation analysis was used to determine the relationship between independent variables (Logistics management system, challenges of ICT adoption) and dependent variable logistics management performance concerning reliability, responsiveness, and flexibility.

Accordingly, the Pearson Correlation results range between 1 (perfectly linear positive correlation) to -1 (perfectly linear negative correlation). When the correlation value is 0, no relationship exists between the variables under study and when the correlation value lies in the middle between 1 & -1 (excluding 0) the below interpretation developed by (Field, 2005).

Table 4-9 Correlation analysis of variables

	Correlations	1	2	3	4	5	6	7	8
1	Performance	1							
2	IM system	-.063	1						
3	TM system	.446	.508	1					
4	WM system	.596	.039	.694	1				
5	PM system	.426	.049	.465	.430**	1			
6	TC	.705	-.170	.461	.780	.430**	1		
7	OC	.290	-.270	.035	.226	.063	.412**	1	
8	UC	.429	-.218	-.053	.059	.185	.162	.113	1

Source: Own survey (2020)

As can be seen in Table 4.10 above, which depicts the relationship between independent variables (Logistics management system and Challenges of information system adoption) and logistics management performance, both the Logistics management system and the Challenges of information system adoption are found to have a significant correlation

with logistics management performance. Pearson correlation value illustrates that the warehouse management system (r=.596**) and Technical challenges (r=.705**) have a strong positive correlation with logistics management performance. Pearson correlation value illustrates that the Transport management system (r=.446**), Procurement (r=.426**), and Users challenges (r=.429**) have a medium positive correlation with logistics management performance. And also Pearson correlation value illustrates that organizational challenge (r=.290*), and Inventory management system (r=-.063) have a weak positive and negative correlation with logistics management performance respectively.

These results imply that if there is an information system in ESLSE, it is very likely to influence and lead to improved logistics management performance. The result suggests that the Challenges of information system adoption are positively and significantly related to the logistics management system performance of ESLSE.

Table 4-10 Regression analysis in terms of (Reliability, Responsiveness, and Flexibility)

Variables	Unstandardized coefficient		Standardize coefficient		
	Beta	**Std. error**	**Beta**	**t**	**Sig.**
Constant	.257	.380		.677	.501
Inventory management system	.006	.116	.006	.055	.956
Transport Management system	.172	.121	.205	1.427	.159
Warehouse management system	-.016	.120	-.022	-.132	.895
Procurement management system	.039	.086	.044	.454	.651
Technological challenge	.505	.127	.544	3.966	.000
Organizational Challenge	.023	.082	.024	.275	.784
Users challenge	.256	.060	.344	4.261	.000

Dependent: LMIS Performance (Responsiveness, Reliability, and Flexibility)

Source: own survey (2020)

4.9 Regression Analysis

The discussion of findings has been structured around each research objective and findings made from the analysis. Ideally, it was expected that the relationship between logistics management system (inventory management system, warehouse management system, transport management system, procurement management system), Challenges of adoption of Information system (technology challenges, organizational challenges, and user`s challenges) and logistics management information system performance would be positive or negative and significant or no significant. The study used a simple linear regression model of the form LMISP= $\beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \beta 2 + \varepsilon$ where LMP= Logistics management information system performance, X1= IM, X2= TM, X3=WM, X4=PM, X5=TC, X6=OC, X7=UC and ε = error term.

LMISP= 0.257+.006X1+.172X2+-.016X3+.039X4+.505X5+.023X6+.256X7

Constant = 0.257, shows that if logistics management system (inventory management system, warehouse management system, transport management system, procurement management system) and Challenges of adoption of Information system (technology challenges, organizational challenges, and user`s challenges) are rated as zero or held constant; Logistics Management information system performance would be a factor of 0.257 and constantly increased.

X1 = 0.006, shows that one unit increases in Inventory management system results in an increase in Logistics management information system performance by a factor of 0.006.

X2 = 0.205, shows that one unit increase in the Transport management system results in an increase in Logistics management information system performance by a factor of 0.205.

X3 = -0.022, shows that one unit decrease in the Warehouse management system results in a decrease in Logistics management information system performance by a factor of -0.022.

X4 = 0.044, shows that one unit increase in Procurement management system results in an increase in Logistics management information system performance by a factor of 0.044.

X5 = 0.544, shows that one unit increase in the Technical Challenges of Information system adoption results in a decrease in Logistics management information system performance by a factor of 0.544.

X6= 0.024, shows that one unit increase in Organizational Challenges of Information system adoption results in a decrease in Logistics management information system performance by a factor of 0.024.

X7 = 0.344, shows that one unit increase in Users Challenges of Information system adoption results in a decrease in Logistics management information system performance by a factor of 0.653.

This implies that the result shows the warehouse management system practice is a negative relationship while the other logistics management systems are a positive relationship with logistics management performance.

The independent variable of Challenges the adoption of Information systems (technical challenges, organizational challenges, and user`s challenges) is a negative relationship with the logistics management performance of the enterprise.

Results in Table 4.8 reveal that all independent variables can predict up to 59.4% of the total variance in the logistics management performance (Reliability, Responsiveness, and Flexibility) of ESLSE (Adjusted R Square =.594). This means that the regression model can only explain 59.4% of the changes in the dependent variable while the remaining percentage can be attributed to other factors other than the logistics management system practices and the challenges of Information system adoption.

CHAPTER FIVE

5 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter deals with the summary of findings conclusion and recommendations that have been provided as per the findings of the study to improve logistics management information system practice on the logistics management performance of Ethiopian shipping and logistics services enterprise. Based on the empirical findings of the study the following summary, conclusions, and recommendations are made.

5.1 Summary

The study was conducted to assess the LMIS practices and performances of logistics management at ESLSE. The population of the study was employees functioning at ESLSE and therefore the sample size was 76. A five-point Likert scale questionnaire was accustomed to collected primary but quantitative data from 71 respondents as 94% was the response rate. The descriptive and explanatory research design was accustomed to analyzing the collected data. A stratified sampling technique was employed to pick out the respondent.

Inventory planning and management aren't supported by technology and its inventory optimization system isn't integrated with ERP system and therefore the inventory model not accustomed determines the amount ordered is predicated on real demand analysis within the enterprise.

The warehouse management practice shows more or less the warehouse is supported by technology, integrated with ERP system, has an information communication technologies (E-ordering) and database systems. But within the warehouse, it has not skilled operators to use the technologies to perform warehouse activities.

The transport management system failed to integrate with the Enterprise resource planning system it's the first stage to use the technology. Inventory management practices and employee skills didn't affect enterprise performance.

Inventory management practices positively affect logistics management performance while Transport management practice affects positively the logistics management performance. Warehouse management practice negatively affects logistics management performance while Procurement management practice positively affects the performance of LMIS.

5.2 Conclusion

Finding the study conclude that the study focused on the role of LMIS and the Challenges of information system adoption, on the logistics management performance of ESLSE. The results indicate significant positive relationships between the logistics management information system and the logistics management information system performance and research findings also indicate that challenges of information system adoption influence the logistics management performance of ESLSE. Therefore according to the findings challenges of information system adoption is a significant predictor.

However, the logistics management information system was found not to be a significant predictor of the performance of ESLSE. The research concluded that challenges of information system adoption were a better significant predictor of the logistics management information system performance of ESLSE than logistics management system practices as used in the conceptual framework.

Therefore ESLSE needs logistics management system practices and challenges of information system adoption to improve on the logistics management information system performance operations especially in the areas of documentation, cargo tracking, warehousing, transportation, freight forwarding, port, and terminal handling and shipment operations. The finding shows that lack of compatible education and training was the major information system adoption challenges and to alleviate the challenge a careful assessment of education and training needs should minimize this problem.

5.3 Recommendations

The researchers recommend that the accumulation of logistics management information system practices can help the transformation of technological knowledge within ESLSE and can raise the adoption of new technologies. ESLSE would increase their technology abilities by encouraging or supporting their employees easily to adopt new technologies as well as by giving training and education for their employees to become experts. ESLSE should provide reliable, responsive, and flexible shipment and logistics services quality to customers, by avoiding delays in the documentation, cargo delivery, and short led time.

This will increase their competitive advantage in the field of the shipping and logistics sector within the world and hence providing customer satisfaction. To eliminate the challenge of Information system adoption, ESLSE will continue the improvements for the Quality of ICT providers to support the logistics activity.

5.4 Direction of future research

This study provides a lot of facts and findings of the logistics management information system practices of Ethiopian shipping and logistics enterprises (ESLSE). Apart from the findings that this research had described and explained, it has also provided valuable implications for studying implementing information system in logistics and its practice for future research and future researchers could consider logistics management information system challenges as a moderating factor between practices and performances of logistics management information system

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Annex

ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE
DEPARTMENT OF LOGISTICS & SUPPLY CHAIN MANAGEMENT

Dear Participant,

I am a MA student in Logistics and Supply Chain Management at Addis Ababa University School of Commerce under the department of logistics and supply chain management. Currently, I am conducting research, on ***The role of Information system on logistics management performance in Ethiopian Shipping and Logistics Services Enterprise***. The main purpose of this questionnaire is to collect necessary data for the study which will be purely for academic purpose and your response will be kept confidential. The objective of the study is to assess the current logistics management performance and challenges related to information system adoption. As a result, the outcome of this study will depend upon your response, Therefore I would like to request you to fill the questionnaire as per the instruction.

General Instructions

- To make the research outcomes complete, reliable, and fruitful, please complete the questionnaire by considering each question thoughtfully and honestly.
- As I mentioned above your answers will be treated with the highest degree of confidentiality and data collected from this research will be used solely for academic purposes and will report in aggregate.
- If you have any questions or dilemmas, please contact me via Tel. +251911483896 or Email:zehesol@gmail.com

Thank you in advance for your cooperation, and honesty in answering the following questions.

Yours sincerely

Zewdie Taye

Questionnaire

Part I: Demographic Profile of the respondent

1. **Gender** I. Female ☐ I. Male☐

2. **Age** I. Below25 Years ☐ II. 26-35 Years☐

II. 36-45 Years ☐ IV. Above 45 Years☐

3. **Marital status**

I. Single ☐ II. Married ☐

III. Divorced ☐ IV. Separated ☐

4. **What is your level of education?**

I. Grade 1 to 12☐ II. Certificate holder ☐ III. Diploma holder☐

IV. Bachelor's degree holder ☐ V. Master's degree and above ☐

5. How long have you been working in this Company?

I. Less than 5 years☐ II. 5 to 10 years ☐

III. 11 to 15 years☐ IV. More than 15 years ☐

6. In which process, department or section are you working at ESLSE?

I. Inventory☐ II. Transport ☐ III. Warehouse ☐ IV. Procurement ☐ V. Other☐

Part II: Logistic Management Information System Practice. Please rate the following five points. Where 1 Strongly Disagree, 2. Disagree, 3. Neutral, 4. Agree and 5. Strongly Agree.

A	**Logistics management practices of ESLSE**	**Scale**				
1	**Inventory management Practices in ESLSE**	**1**	**2**	**3**	**4**	**5**
1.1	ESLSE's inventory planning and management technology is operated by skilled man power.					
1.2	ESLSE's inventory planning and management are supported by technology.					
1.3	The inventory model used to determine the quantity ordered is based on real demand analysis in the enterprise.					
1.4	ESLSE's inventory optimization system is integrated with the ERP system.					
2	**Transport management practices of ESLSE**	**1**	**2**	**3**	**4**	**5**
2.1	The Transportation Management System of ESLSE is integrated with ERP and other system.					
2.2	ESLSE's applied Transport Management system for vehicle scheduling, tracing, and tracking practices.					
2.3	The transportation Practices of the enterprise is supported by					

	technology to satisfy customers by timely and safely delivery of goods and as well as services.					
2.4	GPS technology for vehicle tracking system with a fleet and fuel management system is Practiced at ESLSE.					
3	**Warehousing Management Practices of ESLSE**	**1**	**2**	**3**	**4**	**5**
3.1	ESLSE'S warehouse is supported by technology.					
3.2	The warehouse operators are skilled to use a computer and other technologies to perform warehouse activities in ESLSE.					
3.3	The enterprise has information communication technologies (E-ordering) and database systems in facilitating ordering practices.					
4	**Procurement management Practices of ESLSE**	**1**	**2**	**3**	**4**	**5**
4.1	ESLSE'S Procurement is supported by technology.					
4.2	The procurement officers are skilled to use the computer and other technologies to perform e-procurement activities with suppliers in ESLSE.					
4.3	The enterprise has information communication technologies (E-procurement) and database systems to facilitating the purchasing practices.					

Objective 2: The role of information system on the logistics management performance of ESLSE. Please rate the following five points. Where 1 Strongly Disagree, 2. Disagree, 3. Neutral, 4. Agree and 5. Strongly Agree.

B	**The role of Information system on the logistics management performance of ESLSE**	**Scale**				
1	**Reliability performance Dimension**	**1**	**2**	**3**	**4**	**5**
1.1	The Transport management information system of the ESLSE's increased the reliability of the Transport management practices performance.					
1.2	The Warehouse management information system of the ESLSE's increased the reliability of the Warehouse management practices performance.					
1.3	The Procurement management information system of the ESLSE's increased the reliability of the Warehouse management practices performance.					
1.4	The inventory management information system of the ESLSE's increased the reliability of the inventory management practices performance.					
2	**Responsiveness Performance Dimension**	**1**	**2**	**3**	**4**	**5**
2.1	The Transport management information system of the ESLSE's increased the responsiveness of the Transport management practices performance.					
2.2	The Warehouse management information system of the ESLSE's increased the responsiveness of the Warehouse management					

	practices performance.					
2.3	The Procurement management information system of the ESLSE's increased the responsiveness of the Warehouse management practices performance.					
2.4	The inventory management information system of the ESLSE's increased the responsiveness of the inventory management practices performance.					
3	**Flexibility/Agility Performance Dimension**	**1**	**2**	**3**	**4**	**5**
3.1	The Transport management information system of the ESLSE's increased the flexibility of the Transport management practices performance.					
3.2	The inventory management information system of the ESLSE's increased the flexibility of the inventory management practices performance.					
3.3	The Warehouse management information system of the ESLSE's increased the flexibility of the Warehouse management practices performance.					
3.4	The Procurement management information system of the ESLSE's increased the flexibility of the Procurement management practices performance.					

Objectives 3: The performance of logistics management practices of ESLSE. Please rate the following five points. Where 1 Strongly Disagree, 2. Disagree, 3. Neutral, 4. Agree and 5. Strongly Agree.

C	**The logistics management performance ESLSE**	**Scale**				
1	**RELIABILITY**	**1**	**2**	**3**	**4**	**5**
1.1	The Logistics management information system of the ESLSEs has the ability to perform tasks on-time in terms of On-time arrival and On-time departure.					
1.2	The Logistics management information system of the ESLSEs has the ability to perform tasks with the right quantity.					
1.3	The Logistics management information system of the ESLSEs has the ability to perform tasks with the right quality (claims-free shipment, damage-free shipment, and the very high distance between accidents, perfect delivery, and perfect route).					
2	**Responsiveness**	**1**	**2**	**3**	**4**	**5**
1.1	The Logistics management information system of the ESLSE has the ability to perform tasks with high responsiveness with less in-transit time variability.					
1.2	The Logistics management information system of the ESLSE has the ability to perform tasks with high responsiveness with less Vehicles load/unload time.					
1.3	The Logistics management information system of the ESLSE has the ability to perform tasks with high responsiveness with					

	less detention time.					
1.4	The Logistics management information system of the ESLSE has the ability to perform tasks with high responsiveness with less delay in traffic time.					
3	**Flexibility**					
3.1	The Logistics management information system of the ESLSE can help the employee to handle customer's requests.					
3.2	The Logistics management information system of the ESLSE can help the employees understand the customer-specific needs.					
3.3	The Logistics management information system of the ESLSE can help to reduce the complaints on the goods and services delivery.					

Objective 4: Challenges hindering the adoption of information systems on logistics management practices. Please indicate your level of agreement, Where 1 Strongly Disagree, 2. Disagree, 3. Neutral, 4. Agree and 5. Strongly Agree.

D	**Challenges hindering the adoption of Information system on logistics management practices**	**Scale**				
		1	**2**	**3**	**4**	**5**
1	**Technological Challenge**					
1.1	Use of Poor technology infrastructure in the ESLSE negatively affected adoption of information system on logistics management practices					
1.2	Data integration problem in ESLSE negatively affected adoption of information system on logistics management practices					
1.3	The high cost of system implementation in ESLSE negatively affected the adoption of an information system on logistics management practices					
2	**Organizational Challenge**					
2.1	Turnover of key personnel in ESLSE negatively affected adoption of information system on logistics management practices .					
2.2	Lack of personnel training in the ESLSE negatively affected the adoption of information system on logistics management practices					
2.3	Lack of end to end user in the ESLSE negatively affected adoption of information system on logistics management practices .					
2.4	Poor communication and feedback systems in the organization negatively affected the adoption of information systems on logistics management practices.					
2.5	Lack of awareness in the organization on the adoption of negatively affected the adoption of information systems on logistics management practices.					

3	**Users Challenge**					
3.1	Weak users adaptability of the system in ESLSE negatively affected adoption of information system on logistics management practices.					
3.2	Lack of user involvement in system adoption in ESLSE negatively affected the adoption of information systems on logistics management practices.					
3.3	Poor conceptual knowledge users about the new system in ESLSE negatively affected the adoption of an information system on logistics management practices.					

Objective 4: The Quality of ICT Support Services provided to the logistics management practices. Please indicate your level of agreement, Where 1 Strongly Disagree, 2. Disagree, 3. Neutral, 4. Agree and 5. Strongly Agree.

NO	**The Quality of ICT Support Services provided to the logistics management practices**	**Scale**				
		1	**2**	**3**	**4**	**5**
1	**Reliability**					
1.1	ICT services is provided to the logistics management practices with the time frame in ESLSE.					
1.2	ICT Support Service is provided to the logistics management practices within a reasonable time in ESLSE.					
1.3	ICT support service is provided to the logistics management practices correctly and professionally in ESLSE.					
2	**Information supply**					
2.1	ICT service is provided to the logistics management practices to provide the information on IT usage guidance in ESLSE.					
2.2	ICT service is provided to the logistics management practices to provide the information which helps to improve the user Knowledge.					
2.3	ICT service is provided to the logistics management practices **t**o provide the information, which helps the user on their daily task.					
3	**Responsiveness**					
3.1	ICT support service is provided to the logistics management practices has immediate action to response on request from any department in ESLSE.					
3.2	ICT support service is provided to the logistics management practices always has staff who ready to assist any department in ESLSE.					
3.3	ICT support service is provided to the logistics management practices and has followed up the schedule on the status of ICT in any department of ESLSE.					
4	**Technology Usage**					
4.1	ICT support service is provided to the logistics management					

	practices is strong in improving users' adaptability of the system in ESLSE.					
4.2	ICT support service is provided to the logistics management practices that engage users' involvement in system adoption in ESLSE.					
4.3	ICT support service is provided to the logistics management practices to enhance the technical and conceptual knowledge of users about the new system in ESLSE.					
5	**Proactive**					
5.1	ICT support service is provided to the logistics management practices with no need for request from users to take action in ESLSE.					
5.2	ICT support service provides ICTS with value-added to the customer in ESLSE.					
5.3	ICT support service always thinks about what the best is for customers in ESLSE.					
5.4	ICT support service is provided to the logistics management practices capable to forecast and predict the output of logistics practices.					
5.5	ICT support service is provided to the logistics management practices is helpful to plan a monitor user's daily activity.					

Thank you