THE INFLUENCE OF SUPPLY CHAIN OPTIMIZATION ON SERVICE DELIVERY IN SELECTED HUMANITARIAN ORGANIZATIONS IN KENYA. A CASE STUDY OF REDCROSS

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A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF MANAGEMENT AND LEADERSHIP IN PARTIAL FULFILMENT FOR THE AWARD OF A DIPLOMA OF SUPPLY CHAIN MANAGEMENT OF THE MANAGEMENT UNIVERSITY OF AFRICA.

JANUARY 2024

DECLARATION

Declaration by Student.

This research project is my original work and has not been presented for award of diploma in any other university.

Sign…… **Date**……..

YUSSUF MOHAMED SHOBAI

DSM/15/00108/3/22

Declaration by Supervisor

This research project has been submitted with my approval as Management University of Africa Supervisor.

Sign…… Date …….

MR. JAMES SIMEL

THE MANAGEMENT UNIVERSITY OF AFRICA.

DEDICATION

This endeavor is dedicated to my parents, who have been there for me throughout my life. May God grant them excellent health, pleasure, serenity, a long life, and, most importantly, his eternal love.

ACKNOWLEDGEMENT

I am grateful to God for the strength and grace that have guided me throughout my academic journey. I am deeply grateful to my supervisor, Mr. James Simel, for his invaluable guidance, wisdom, and unwavering patience, which played a pivotal role in enabling me to successfully complete this research project. I want to express my gratitude to my classmates for their unwavering support and collaborative efforts that greatly facilitated our journey.

ABSTRACT

Global demand for humanitarian aid has reached unprecedented levels and increases alarmingly every year.This increase can be attributed to a variety of factors, including climate change, conflict, and human activities. Kenya's most affected people are those living in arid and semi-arid regions, which make up about 80% of the country and an estimated 30% of the population. Floods and droughts severely impact the region, mainly due to inadequate land cover and lack of infrastructure due to years of marginalization. Humanitarian organizations play an important role in providing essential services to this group of people. Humanitarian organizations face the challenge of responding effectively to people's problems with limited resources. The purpose of this research study was to investigate the impact of supply chain optimization on service delivery in selected humanitarian organizations in Kenya. The purpose of this study was to investigate the impact of inventory management, strategic sourcing, technology, and transportation and distribution on service delivery in selected humanitarian organizations in Kenya. A descriptive research design was selected for this study. The study population consists of his 160 Red Cross employees. A sample of 64 people was selected using a stratified random sampling method. Data collection tools include a questionnaire and data are presented using graphs and tables to enhance interpretation and analysis.

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LIST OF ABBREVIATIONS

KRCS	Kenya Red Cross Society

OPERATIONAL DEFINITION OF TERMS

Humanitarian Organizations	Refers to organizations responsible for responding quickly and efficiently to human needs caused by natural catastrophes or war.
Service Delivery	This encompasses the endeavors undertaken by humanitarian organizations to address urgent humanitarian requirements. The evaluation of service delivery encompasses metrics such as the number of lives saved, efficient use of resources, adaptability of the organization, and management of disaster response time.
Supply Chain Optimization	This is the art and science of developing a quantitative and qualitative strategic view of the entire supply chain of an organization. It requires an emphasis on transportation and distribution, technology, inventory management, and strategic resourcing.
Inventory Management	This term encompasses all actions taken to guarantee that the required product or service is readily available to end users. Carrying costs, return on inventory, and days in inventory can be utilized to evaluate inventory management.

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

The chapter provides an overview of the study's background, the problem statement that serves as the main focus of the project, the general and specific objectives, the importance of the study, the scope, and a summary of the chapter.

1.1 Background of Study

Environmental degradation caused primarily by human activities is estimated to affect more than 134 million individuals worldwide (Global Humanitarian Organization, 2018). Approximately one billion people globally are devoid of fundamental identification documents, which exacerbates the problem (World Bank, 2018). The population's ability to engage in social, economic, and political activities is significantly impeded by their absence of identity. As stated in the World Disaster Report (2018), non-discriminatory humanitarian action is essential; however, before being identified and assisted, individuals must first be "visible." Geopolitical and environmental hazards increased significantly between 2017 and 2018.

The Humanitarian Response Plans (2017), which were headed by the United Nations, identified Syria, the Democratic Republic of the Congo, South Sudan, Afghanistan, and Ukraine as some of the nations most severely affected. Afghanistan and Ukraine alone had populations of 4 million (60 percent), Syria (13.6 percent), and DRC (13.1 percent), respectively. Kenya, where 12% of the total population resides, is estimated by the Global Humanitarian Assistance Report (2018) to have 5.6 million individuals in need of humanitarian food.

The focus has transitioned to humanitarian organizations, particularly the humanitarian supply chain that sustains them, in response to the aforementioned information. To increase the efficacy of the procedures utilized to transport aid supplies to disaster zones, they must implement supply chain enhancements. In order to enhance the provision of services by humanitarian organizations, supply chain optimization is thus a potent tool (Parwanto, Mohorosi, & Oyama, 2015).

Humanitarian aid is 80% logistics, according to Wassenhove (2006); therefore, effective supply chain management strategies are required to achieve the specified operational objectives. The efficacy of humanitarian endeavors will be determined, in his opinion, by the supply chain function. Since the complexity and unpredictability of humanitarian operations are commonplace, supply chain management must be a top priority for humanitarian organizations.

The achievement of optimal functioning of the supply chain is critical for the successful execution of humanitarian operations, as it influences the ability to mobilize personnel, resources, expertise, and information (Wassenhove, 2006). Humanitarian organizations must continuously implement more efficient and cost-effective practices within their supply chains in order to maintain competitiveness and viability (Abidi, Leeuw, & Klumpp, 2014). Such improvements will grant these organizations a competitive edge in their operations.

The overall success of an organization is influenced by the quality of service provided, as stated by Longenecker and Scazzero (2000). This influence manifests in increased staff morale and customer satisfaction. Thus, the competitiveness and sustainability of humanitarian organizations are contingent upon the provision of efficient services. By consistently honing the necessary competencies to deliver the intended services and implementing strategies that establish a competitive edge in service provision, it is possible to ensure service delivery across the entire supply chain (Ojasalo & Gronroos, 2017).

In order to attain the intended standards of service provision, effective coordination is imperative among the diverse supply chain participants—including entities such as governmental bodies, donors, assistance organizations, donors, Beamon, Krejci, Kyle, and Magaly (2010).

1.1.1 Profile of RED CROSS

The Kenya Red Cross agency (KRCS) was established in 1965 under the Kenya Red Cross Society Act (Chapter 256 Laws of Kenya) and is legally recognized by the Kenyan government as a volunteer assistance agency that collaborates with governmental agencies. It has the distinction of being the only National Red Cross Society in Kenya.

1.2 Statement of the Problem

Humanitarian organisations are crucial in advancing human welfare. In order to accomplish this objective, organisations exert substantial efforts to ensure that the required standards of service delivery are met. Kamau (2013) identified various inherent obstacles to these initiatives, such as the challenge of accurately forecasting disasters, insufficient coordination between supply chain activities and organisational systems, unpredictable demand, inadequate infrastructure in disaster areas, and financial limitations. Kaluki (2015) identified a deficiency in the coordination of the supply chain, performance metrics, and specialised knowledge. Nyamu (2012) identified many challenges including inadequate information integration, deficient transport infrastructure, technology constraints, imprecise service delivery goals, and issues with coordination and management.

Ojwang (2016) states that humanitarian organisations have made significant expenditures in service delivery automation, with 71% of respondents confirming this effort to overcome the mentioned issues. The 2014 study from the United States Agency for International Development (USAID) showcases efforts to enhance service delivery by optimising the design, network, and transportation of supply chains in various global activities. Onyango (2016) reports that several humanitarian organisations operating in the country are actively striving to effectively manage their inventory.

The aforementioned difficulties will be overcome by applying supply chain optimisation, which is based on four key concepts: inventory management, strategic sourcing, technology, and transportation and distribution. By prioritising key elements of the supply chain, as recommended by the ideas, we may enhance the chain's performance, resulting in improved efficiency and desired service levels.

The Arid and Semi-Arid Lands (ASAL) include more than 80% of Kenya's whole geographical area, as reported by the Kenya Natural Disaster Profile (2004) published by the United Nations Development Programme. The areas not only face the risk of extreme climatic events such as drought and flood, but they have also experienced historical marginalisation, leading to significant infrastructural deficits. Approximately 30% of the overall population in these areas consists of nomadic individuals, which poses challenges in delivering services. Approximately five million individuals in the United States require humanitarian aid on a yearly basis.

The research done by Moller and Paulsson (2008) investigated the optimisation of supply for sourced commodities. However, the scope of the investigation was restricted to inbound logistics, primarily focusing on direct purchase and outsourcing. Abedi and Zhu (2016) investigated an optimisation model for the purchase, manufacturing, and distribution of the fish supply chain. However, the analysis focused only on certain aspects of the fish farming supply chain. Paksoy and Ozceylan (2013) conducted a study to investigate the optimisation of reverse supply chains. They focused on achieving a balance in disassembly lines and emphasised network optimisation for waste management.

This research focuses on the methods and tactics that humanitarian organizations working in the nation may use to guarantee that their supply chains run smoothly and offer the appropriate service levels. Specifically, the research focuses on efforts that may be implemented at certain phases of the supply chain to result in a more efficient and dependable chain.

1.3 Objectives of the study

1.3.1 General objective

The main aim of this research was to assess the impact of supply chain optimization on service delivery in specific humanitarian organizations in Kenya. A case study of REDCROSS.

1.3.2 Specific Objectives

i To find out how strategic sourcing influence service delivery at REDCROSS.

ii To determine how technology influence service delivery at REDCROSS.

iii To establish the influence inventory management on service delivery at REDCROSS.

iv To assess the effect of transport and distribution on service delivery at REDCROSS.

1.4 Research questions

i. What is the influence of strategic sourcing on service delivery at REDCROSS?

ii. To what extent does technology influence service delivery at REDCROSS?

iii. What is the influence of inventory management on service delivery at REDCROSS?

iv. What is the impact of transport and distribution on service delivery at REDCROSS?

1.5 Significance of the study

This study will aid humanitarian decision makers in their resource allocation choices, while scholars may have the chance to evaluate the work and add to the knowledge base. This report may help the government develop policies regarding humanitarian groups operating inside Kenya's borders.

The research will also contribute to the existing pool of knowledge especially in the area of supply chain.

1.6 Scope of the study

The study was limited to humanitarian organizations working in Kenya and specifically examined four key ideas for optimizing the supply chain: inventory management, strategic sourcing, technology, and transport and distribution. The objective was to assess how these concepts affect the delivery of services. A case study on RED CROSS. The survey addressed 160 RED CROSS personnel, including management and general staff. The research was conducted between October 2023 and January 2024.

1.7 Chapter Summary

The chapter encompassed the study's background, which established the study's basis, the problem statement, which identified the issue that the study aimed to address, the study objectives, which shaped the research questions and variables of the study, the significance of the study, and lastly, the study's scope.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter assesses secondary material offered by other researchers on the topic of study. It also reviews the existing and relevant literature on the research variables.

2.1 Theoretical Literature Review

Theories are created to explain, predict, and comprehend facts, as well as to question and expand current knowledge within the confines of crucial border assumptions (Swanson 2013). The following hypothesis motivated this study: Resource-Based View Theory, Time In Transit Theory, and Network Theory.

2.1.1 Resource Based View Theory

Companies prioritize and distribute resources in accordance with their own aims and objectives. The strategy developed by an organization constantly influences the resource selection process. The goal is to have a unique mix of resources that cannot be readily replicated.

Efficiently integrating and deploying resources like as technology and humans in humanitarian supply chains may significantly help organizations achieve their goals and objectives. An organization's internal resources and competencies contribute to its competitive edge.

Nevertheless, the resource-based hypothesis has limits. For a competitive advantage to be sustained, the resource under consideration must have specified characteristics. The resource should give considerable organizational efficiency advantages. It should be different and distinctive in order to provide the firm with a competitive edge. The resource should be difficult for competitors to replicate and tailored to the firm's specific needs. Furthermore, the resource should be difficult to replace with alternatives (Peteraf & Bergen, 2003).

This hypothesis lends substantial support to the notion of inventory management. Inventory management measurements take into account aspects such as carrying cost, days in inventory, inventory turnover, and return on investment for a certain batch of goods.

2.1.2 Time in transit theory

Tanaka (2010) suggested the idea based on data from the Japanese Logistics Census. The hypothesis draws a link between transportation cost, distance, and time to assure timely delivery. According to Tanaka's study, the distance and time spent in various forms of transportation have a substantial influence on expenses. Interestingly, firms tend to incur greater costs when making short-distance deliveries vs longer ones, regardless of whether they employ road, rail, or maritime delivery (Tanaka, 2010). According to Anderson and Wincoop (2004), the cost of transportation has a considerable impact on international commerce, possibly limiting or facilitating it. The importance of transport and distribution in the supply chain cannot be emphasized.

This hypothesis has certain drawbacks and is best suited to big enterprises with significant transportation expenditures. It aims to strike a balance between transportation costs, distance, and time. Furthermore, the idea depends on the availability of data to help people make educated choices (Tanaka, 2010).

This theory considerably improves the transit and distribution function, which is an important instrument in improving access to services. Transport and distribution may be assessed based on characteristics such as costs, transit time, supply chain dependability, and the amount of application of efficient transport management systems.

2.1.3 Network Theory

Barnes (1954) was the first to initiate the examination of social networks in the field of sociology. Social network theory examines the connections and interactions between individuals within a system. Social networks may manifest in many formats, including both digital and physical realms. Networks consist of nodes, which are individual things, and ties, which are relationships (Rodriguez, 2016).

Supply chain networks are intricate and heavily depend on the interconnections between network members for their operation. The network theory provides a comprehensive analysis of the interconnections between organizations at various hierarchical levels, including their executives and employees (Newman, 2003). Establishing robust connections is crucial for guaranteeing smooth supply chain operations. This is supported by network theory. Humanitarian organizations depend on networks to gather data and formulate disaster response strategies (Lincoln, 2015).

The concept is constrained by its limitations, since it may be difficult to identify the crucial connections that will unite processes and partners in order to establish a network. The efficacy of the concept also relies on establishing connections to foster the relationships that constitute the network. The efficacy of the network relies on the regularity of communication, duration of involvement, and level of dedication towards creating the connection (Lui, Sidhu, Beacom, & Valente, 2017). Establishing robust networks allows supply chains to promptly adapt to fluctuations in operating conditions, such as evolving customer demands and competition responses. This enhances the interconnections and augments the effectiveness (Bantham, Celuch, & Kasouf, 2003).

This concept posits that the evaluation of strategic sourcing may be conducted by considering factors such as cost reduction, product excellence, operational effectiveness, time efficiency, and supplier performance.

2.2 Empirical Literature Review

2.2.1 Strategic sourcing and service delivery.

Strategic sourcing involves implementing a methodical approach to optimize the benefits of purchasing from several suppliers that possess expertise and a competitive edge in the buyer-vendor relationship. The sourcing function has seen substantial evolution throughout time, transitioning from a passive and reactive administrative one to a more proactive and intentional one. In his study, Maurice (2014) investigated the procurement procedures that impact the provision of services, with a specific focus on Kenya Power. The poll encompassed a sample of 7000 Kenyan power professionals hailing from various locations across the nation. A random sample of 160 workers was selected using stratified sampling. The comments were collected from several areas inside the company, such as procurement, customer service, marketing, finance and audit, and technical divisions. The study examined the impact of procurement policy, procurement strategy, and sustainable procurement practices on the provision of services. The paper highlights that procurement practices significantly influence service delivery inside the organization. As per the participants' feedback, sustainable procurement was shown to have the most significant impact on service delivery among the several strategies evaluated. Despite the limitations of doing a case study, which may have hindered the capacity to make direct comparisons, the primary emphasis of data collection was on the headquarters. This might have led to a distorted representation of service provision, prioritizing urban areas over rural regions.

In their study, Thuo and Njeru (2014) examined how alterations in public procurement affected the provision of services at the National Spinal Injury Referral Hospital in Nairobi. The study examined a sample of 224 individuals and using stratified random sampling to choose 67 participants. The study highlighted the importance of transparency in tender committees, ensuring equitable competition, and maintaining openness throughout the procurement process. It emphasized the need of tender committee members possessing a thorough understanding of the legislation governing public procurement and disposal. Ultimately, the research concluded that the discovered characteristics had a beneficial impact on the levels of service delivery. Nevertheless, the extended procurement processes were an obstacle, leading to inventory deficiencies at the manufacturing. Nevertheless, the investigation just encompassed a single public institution. Sharing the results with other public institutions might be beneficial in gaining a more comprehensive understanding of the situation.

In their study, Sillanpaa, Sillanpaa, and Shahzad (2015) examined strategies for enhancing supplier development and improving buyer-supplier relationships. The study, conducted with the objective of offering theoretical validation, identified key attributes that contribute to the expansion of the sourcing function in enterprises. Variables like as competitive pressure, evaluation and certification systems, incentives, and direct participation have a significant role. Research indicates that competition enhances the quality and performance of suppliers. Evaluation and certification procedures are critical for assuring supplier performance as well as providing suppliers with incentive. Incentives such as fast payment and guaranteed business assist to encourage supplier growth. Furthermore, direct engagement encourages strategic collaborations between suppliers and customers, which ultimately ensures quality. Unfortunately, the research lacked scientific evidence and could not disclose precise raw data results.

2.2.2 Technology and service delivery.

Supply chain technology encompasses a wide range of tools and systems that enable the collecting, analysis, support, and accessibility of information across a network. The three primary categories of technology include automatic identification technology, information technology, and communication technology. Ojwang (2016) conducted a study on the impact of information technology on the logistical operations of humanitarian relief groups in Kenya. The report conducted by Enterprise Human Resource and Payroll (2015) specifically targeted 53 enterprises in Kenya as its audience. Due to the small size of the target population, the research employed a census sample methodology. The study examined many applications of information technology, such as process automation, organizational

adaption, information dissemination, and resource management. The study discovered a significant correlation between the utilization of technology and the enhancement of efficiency in relief logistics. The integration of technology led to improved coordination, reduced lead times, greater quality, and increased cost efficiency. Due to the rapid pace of technological advancements, the findings of this research may become outdated in the coming years. Moreover, it would be advantageous to replicate the research across different sectors to evaluate the extent of its applicability.

Auramo et al. (2014) conducted a comprehensive analysis of existing literature to examine the impact of information technology on supply chain management. The study concentrated on transaction processing, supply chain planning and collaboration, and order tracking and delivery synchronization. The collected empirical data demonstrates a strong correlation between technology parameters and supply chain management. The use of transaction process automation has shown to be highly beneficial, resulting in cost savings, increased transaction volume, and the eradication of human errors. Supply chain planning facilitated inter-organizational collaborations, while order tracking and delivery coordination ensured efficient consolidation and monitoring of products during transportation. Regrettably, the research is deficient in the essential raw data necessary to substantiate its empirical findings. Hence, it is unfeasible to completely embrace the findings of the study.

In their study, Onobrakpeya, Nana, and Odu (2018) examined the impact of information and communication technology on the provision of services in Nigeria's manufacturing industry. The study analyzed a cohort of 515 employees from various privately owned companies. A stratified random selection methodology was employed to choose a total of 225 participants for the study. The study examined three factors related to information communication and technology: telecommuting, teleconferencing, and electronic mail. The findings demonstrated that the indicators had a favorable influence on service delivery by promoting effectiveness through improved communication, reduced expenses, and adaptability. These characteristics subsequently enhanced employee performance by increasing motivation. Regrettably, the study solely focused on information and communication technology, neglecting other technological elements that may potentially improve the delivery of services. Evaluate the generalizability of the study findings across other sectors to ascertain their relevance.

2.2.3 Inventory management and service delivery.

The goal of inventory management is to coordinate a wide range of activities so that final consumers may always get their hands on the goods and services they need. At St. Martin's Hospital in Agroyesum, Ghana, Osei (2015) studied how inventory management techniques affected the quality of care patients received. The study surveyed 235 hospital employees from different departments using a descriptive survey methodology. Researchers selected 60 participants from a variety of fields, including retail, pharmacy, finance, and records, using a combination of convenience and purposeful selection. The study examined several methods for managing inventory, such as ABC analysis, economic order quantity, material requirement planning, enterprise resource planning, JIT systems, manufacturing resource planning, and distribution resource planning. The study found that the inventory management processes significantly affected the service delivery of the institution. Prolonged procurement procedures, insufficient financing, and a lack of training were also named as challenges to inventory management in the study. The findings may not be applicable outside of the specific institution where the study was conducted. Other aspects of inventory management that influence service delivery were also disregarded by the investigation.

Major Kenyan supermarkets' inventory management strategies and customer service were the subject of Wanyonyi's (2017) study. The study covered 17 large supermarkets with floor plans varying in size from 1,000 to 5,000 square feet. The research design was expressive. This study compared the effects of many inventory management approaches on service delivery. These approaches included vendor controlled inventory, economic order quantity, just-in-time, and the ABC system. According to the research, most grocery stores employ vendor controlled inventory for expensive goods and just-in-time for foods that may spoil soon. Prioritizing high-value assets and implementing stronger security measures for them was done using the ABC technique. The chosen criteria significantly affected service levels, according to the regression study. Results also demonstrated that these strategies strengthened ties between buyers and sellers.

Onyango (2016) investigated how health humanitarian groups in Kenya handle inventories and provide their services. The study looked at 10 different groups, all of which were health humanitarian organizations. The study compared several humanitarian organizations using a cross-sectional descriptive methodology. Humanitarian organizations in Kenya were shown to be significantly impacted by inventory management methods such reorder level, economic order quantity, just in time,

vendor controlled inventory, and activity based costing in terms of both performance and service delivery. Nevertheless, not all inventory management solutions that humanitarian organizations may employ to improve service delivery were included in the research. The importance of inventory management in service delivery is highlighted by the study, which strongly supports the idea.

2.2.4 Transport & distribution and service delivery.

Transportation is the transfer of people, goods, or resources between different places using various modes of transportation. Griffis and Goldsby (2015) investigated transportation management systems, looking at their present accomplishments and prospects for the future.. These systems allow them to manage the logistical aspects of their operations more effectively. It was also discovered that the majority of firms considered that the hazards of not deploying a transport management system outweighed the benefits of doing so. They also discovered that the return on investment was both swift and dependable. The results also emphasized the need of ensuring that the implemented management system is consistent with other parts in the supply chain in order to accomplish strategic objectives and promote sustainability. However, the research did not take into account other elements other than transportation that might influence transportation efficacy in the supply chain.

Strawderman, Eksioglu, and Zhang (2011) performed a research to examine the role of multimodal transportation in humanitarian supply chains. The research focuses on a collection of humanitarian groups in the US. An online survey was undertaken to collect data, and 769 participants were picked at random. The research looked at the frequency with which various modes of transportation were used, the amount of intermodalism used, critical criteria in choosing disaster relief modes, and the influence of organizational type and procedures on mode decision-making. The research discovered that the efficiency of intermodalism in catastrophe scenarios is strongly impacted by the individual conditions. Intermodalism is vital at these critical moments when people and goods must be transported to impacted regions with little or no previous planning. The decision-making process for transportation was determined to be impacted by elements such as organizational type and capabilities, cost, distance, the kind of goods being delivered, and available means of transportation. Each relief situation was found to be unique, demanding a tailored method to transportation. Unfortunately, the survey did not include a particular tragedy to serve as a point of reference for all responders. As a consequence, the research was unable to provide a focused and organized result.

Kiraga (2014) undertook a research to analyze the methods and performance of humanitarian organizations in Kenya in the area of transportation management. The census approach was used in the research to collect data from all humanitarian groups participating in Kenyan assistance delivery. The data was analyzed using a descriptive design. The research looked at a variety of transport management procedures, including carrier management, load planning and optimization, shipment preparation and execution, shipping processes, freight payment audits, and performance monitoring. The research discovered that using certain transportation management methods improved organizational performance. These practices resulted in quicker response times, lower costs, and more timely and accurate deliveries. Even with efficient transportation, the overall performance of the supply chain relies on various factors such as inventory management, technology, and resource management.

2.3 Summary and Research Gaps

Koumanakos (2008) conducted study with the primary goal of identifying the impact of inventory management on company performance. The research data came from the ICAP database, which has financial records of medium to large Greek companies. The years 2000–2002 made up the time frame. Results may not be applicable to present circumstances due to the passage of time after the research was finished. While Koumanakos (2008) conducted his research in Greece, the upcoming investigation will be carried out in Kenya. Results may vary due to this change of venue.

Various research have looked at how well manufacturing companies in Kenya are doing (Awino, 2011; Haron & Arul, 2012; Mwangangi, 2016; Gichuru, Iravo, & Arani, 2015). The impact of supply chain optimization on Kenyan humanitarian groups' operations, however, has received less research attention. Few people understand the impact that logistics, transportation, inventory management, and strategic sourcing have on the services provided by humanitarian organizations in Kenya.

2.4 Conceptual Framework

Independent variables **Dependent variable**

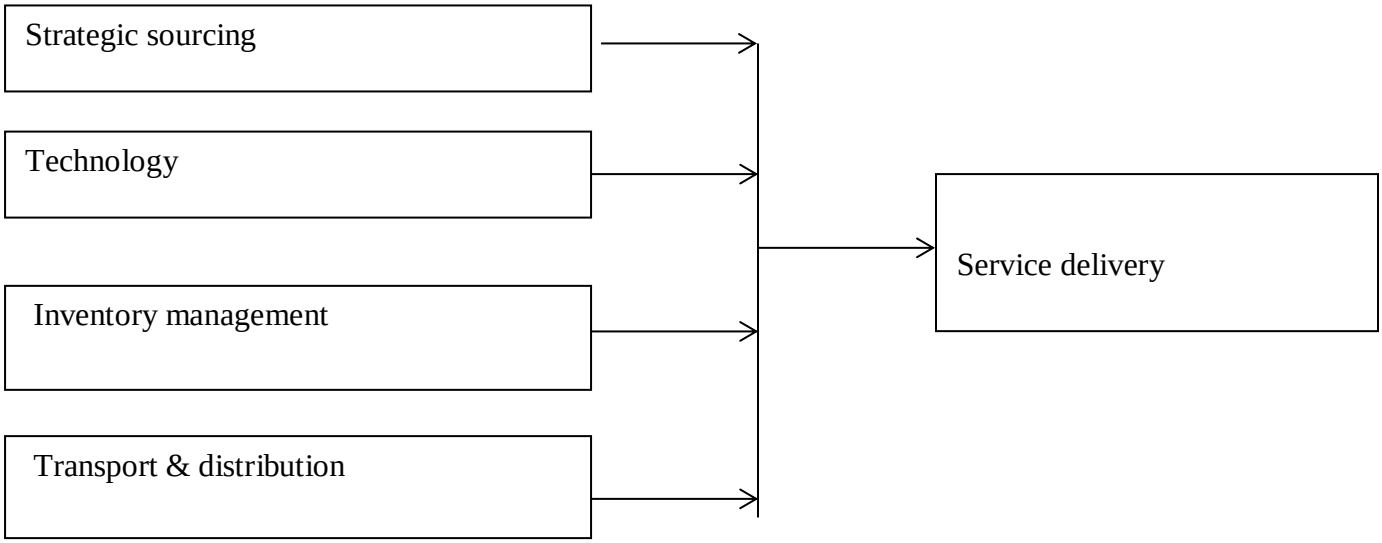

Figure 1 : Conceptual Framework

2.5 Operationalization of variable

Table 1 : Operationalization of Variables

Variables	Indicators	Measurements
Strategic sourcing	• Cost savings • Vendor quality • Product quality • Lead time	▪ Measurement scale of 1-5 ▪
Technology	• Process Automation • Information Flow • Organizational flexibility • Resource planning	▪ Measurement scale of 1-5
Inventory management	• Carrying cost • Days in inventory • Inventory turnover • Return on investment	▪ Measurement scale of 1-5

Transport & distribution	• Transport costs • Time in transit • SC reliability • Management practices	▪ Measurement scale of 1-5

2.6 Chapter summary

The chapter covered the literature review that is pertinent to this investigation. The theoretical framework was one of the literature sources that the researcher examined. The researcher also examined the broader literature. The chapter also included the empirical literature and conceptual background for this investigation. The following chapter will describe the research technique for this study.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction

The research methods are described in this section. Topics covered extensively in the study include research methodology, study location, population of interest, sampling strategies, research tools, preliminary investigation, data gathering, and analysis.

3.1 Research Design

Eriksson and Kovalainen (2008) describe research design as the researcher's blueprint for the methodologies and instruments utilized in data collecting and analysis to answer the study's research questions. It is a strategy that drives the study throughout the process of acquiring, evaluating, and interpreting observations. The study's research strategy comprised both explanatory and descriptive methodologies. This design not only describes but also explains the phenomenon being examined. The frequently used research design aims to establish a cause-and-effect relationship between variables.

3.2 Target Population

A research population, according to Bernard (2017), is a precisely defined group of people or things that are known to have same traits and typically share one unifying attribute.

Table 2 : Target Population

Population Category	Target	Percent (%)
Top management	20	13
Middle management	50	31
Supportive staff	90	57
Total	**160**	**100**

3.3 Sample and sampling technique

Sampling is the process of selecting a small group from a larger population. According to Vaitkevicius and Kazokiene (2013), it is vital to guarantee that the sample frame is comprehensive and representative of the whole study population, particularly when the target group differs from the general population. This study employed stratified random sampling to compensate for the population's diverse

attributes. To get an ideal sample, the population was separated into several subpopulations or strata from which samples were drawn. The sample items for each stratum were chosen at random (Kothari, 2014). Around 40% of the target population has a positive disposition.

Table 3 : Sample and Sampling Technique

Population Category	Target population (N)	Sample population (n)	Percentage (%)
Top management	20	8	14
Middle management	50	20	29
Supportive staff	90	36	57
Total	**160**	**64**	**100**

3.4 Data Collection Instruments

The survey instruments employed in this research were structured questionnaires comprising closed-ended inquiries. The decision to employ structured questionnaires in this study was based on their capacity to increase the rate of responses. The simplicity with which respondents can furnish responses is the reason for this when utilizing such questionnaires. The implementation of a structured questionnaire significantly improved the efficacy of the data categorization and analysis procedures. Additionally, it enabled the evaluation of the respondents' perspectives on the research variables and served to mitigate any potential misunderstandings among the participants regarding the concept of study (Cooper & Schindler, 2018). A digital platform was utilized to administer the survey in the form of an electronic questionnaire that was disseminated to respondents through a hyperlink. This allowed participants sufficient time to respond to every inquiry included in the survey.

3.5 Pilot Study

A pilot test involves performing an initial evaluation of data collection instruments and protocols in order to detect and rectify any possible complications or inaccuracies. The purpose of this process is to detect ambiguous inquiries and imprecise directives, collect insightful feedback and suggestions, and improve the effectiveness of instruments used for data collection. The results obtained from a pilot study provide the opportunity to refine and adapt the instruments and protocols required for the main data gathering phase (Mohamed, 2018). A pilot study was undertaken as part of the investigation,

utilising a sample size of ten individuals who were subsequently excluded from the target group. The aforementioned value corresponds to an estimated 10% of the total sample size.

3.5.1 Validity

Validity refers to the degree to which data instruments are suitable for use with the specific population being studied (Kothari, 2014). The study utilized criterion validity to ascertain that the measure accurately assesses the intended variable and is not influenced by any other factors. In order to enhance the validity of this study, the researcher sought the input of research experts to obtain their comments on the appropriateness of the study.

3.5.2 Reliability test

The idea of reliability of an instrument refers to its capacity to deliver consistent findings when used frequently. Consistent findings on a variable after numerous administrations suggest that an instrument is reliable. A preliminary research was then undertaken, and the results were evaluated for association using the Statistical Package for the Social Sciences (SPSS).

3.6 Data Collection Procedure

A study authorization was acquired from The Management University of Africa prior to undertaking data collection fieldwork in the assigned departments of RED CROSS. After receiving the requisite authorization, the researcher traveled to the selected field to begin collecting data. Before delivering the surveys, the researcher acquired respondents' agreement to participate. The surveys were distributed to respondents in person, following standard process for gaining permission before delivering them. Individual questionnaires were gathered for examination.

3.7 Data Analysis and Presentation

Data analysis is a methodical process of scrutinizing and assessing data in order to extract meaningful conclusions, facilitate effective decision-making, and generate informed interpretations (O'Neil & Schutt, 2013). A thorough scrutiny was applied to the collected data in order to ascertain its integrity and inclusiveness. After the preliminary stage, the data underwent a methodical process of consolidation, coding, and tabulation. Subsequently, the data were inputted into the SPPS (Statistical Package for the Social Sciences) software in order to enable thorough analysis. Descriptive statistics, particularly frequency and frequency percentages, were utilized to facilitate comprehension and analysis of the results, enabling the identification of recurring patterns and trends. The aim of this

methodology was to enhance the understanding and significance of the deductions made from the data analysis.

3.8 Ethical Considerations

According to Saunders et al. (2016), ethics encompass the moral principles that govern moral evaluations within interpersonal relationships. The study was conducted in adherence to ethical principles to ensure the integrity of the research. The study implemented robust confidentiality protocols to ensure the collection of data from participants while safeguarding their privacy. The participants are provided with the opportunity to complete the questionnaire in a manner that ensures their anonymity. A formal letter has been sent to RED CROSS, expressing the intention to participate in the research and ensuring that informed permission for study involvement is provided.

3.9 Chapter Summary

The chapter summarized the research methods used in the inquiry. To reflect the nature of the inquiry, the study used a descriptive design. The target population, sample size, sampling method, research tool, data collecting technique, and analysis methods have all been extensively explained.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.0 Introduction

The present chapter elucidates the process of data analysis and the subsequent interpretation of the findings, in accordance with the predetermined purpose and objectives of the study.

4.1 Presentation of findings

4.1.1 Response Rate

The researcher distributed fifty six (56) questionnaires to the institution in line with the chapter's recommended sample size.

Table 4 : Response rate

Response rate	Frequency/ No of questionnaires	Percentage (%)
Responded	52	93
Not responded	4	7
TOTAL	**56**	**100**

The response rate was strong, with 92% of the 56 questionnaires issued to members of the institution returning. The fact that the vast majority of surveys were completed illustrates the reliability of the data collected.

4.1.2 General Information

The respondents' basic information includes their gender, age group, term of employment with the organization, and highest degree of education.

Table 5 : General information of the Respondents

	Frequency	Percent
Gender		
Male	32	62.0
Female	20	38.0
Total	52	100.0
Age bracket		
Below 25 years	10	19.0
Between 25 and 35 years	15	29.0
Between 35 and 45 years	22	42.0
Above 45 years	5	10.0
Total	52	100.0
Duration in the organization		
Less than 1 year	8	15.0
Between 1 and 5 years	25	48.0
Between 5 and 10 years	14	27.0
Above 10 years	5	10.0
Total	52	100.0
Highest level of education		
Diploma	15	29.0
Undergraduate Degree	27	52.0
Postgraduate Degree	10	19.0
Total	52	100.0

According to the data, 62% of the respondents identified as male, while 38% identified as female. This demonstrates that the majority of the RED CROSS employees were male.

In terms of age, 42% of respondents said they were between 35 and 45 years old, 19% said they were under 25 years old, 29% said they were between 25 and 35 years old, and 10% said they were above 45 years old. This means that the majority of RED CROSS employees were between the ages of 35 and 45.

According to the data, 48% had worked in their company for between one and five years, 27% for between five and ten years, 10% for more than ten years, and 15% for less than one year. This demonstrates that the majority of the RED CROSS headquarters

employees had been with the organization for between one and five years.

4.1.3 Strategic sourcing

The researcher sought to examine how strategic sourcing influences the service delivery at RED CROSS. The study findings are discussed using descriptive statistics to show the responses.

Table 6 : Respondents view on how strategic sourcing influences the service delivery at RED CROSS

	SA	A	N	D	SD
The sourcing function constantly enhances the quality of providers	53%	41%	6%	0%	0%
The sourcing function continuously shortens purchase lead time	59%	37%	4%	0%	0%
The organization is concerned about the quality of the items utilized in the delivery of services	48%	27%	4%	11%	10%

The data show that the sourcing function is always improving the quality of suppliers. Among the responses, 53% strongly agreed, 41% agreed, and 6% were indifferent. Notably, nobody of the respondents strongly objected nor strongly agreed with the statement. The second inquiry under this variable looked at whether the sourcing function consistently shortens buy lead times. Among the responses, 59% strongly agreed, 37% agreed, and 4% were indifferent. Neither of the respondents strongly disagreed nor agreed. The study's goal was to determine if the company is aware of the quality of the items utilized in service delivery. According to the data, 48% of participants strongly agreed with this viewpoint, 27% agreed, 4% were neutral, 11% disagreed, and 10% strongly disagreed.

4.1.4 Technology

Table 7 : Respondents view on the influence of technology on service delivery at RED CROSS

	SA	A	N	D	SD
Technology is utilized to disseminate information across the supply chain	41%	34%	9%	12%	4%
The corporation employs technology to improve organizational flexibility.	39%	34%	5%	15%	7%
Most supply chain procedures are automated.	13%	77%	3%	7%	0%

The first study question was to investigate how technology is utilized to transmit information across the supply chain. The responses were as follows. 41% of those polled strongly agreed, 34% agreed, 9% neutral, 12% disagreed, and 4% strongly disagreed.

The study also inquired if the firm employs technology to increase organizational flexibility, with 39% highly agreeing, 34% agreeing, 5% neutral, 15% disagreeing, and 7% strongly rejecting. The last statement of the study aimed to determine if most supply chain procedures are automated; 13% strongly agreed, 77% agreed, 3% were neutral, 7% disagreed, and 0% strongly disagreed.

4.1.5 Inventory management

Table 8 : Respondents view on the influence of inventory management on serviced delivery at RED CROSS

	SA	A	N	D	SD
Inventory held is consumed continuously throughout the year	15%	71%	5%	8%	1%
The firm maximizes benefit from the inventory used to justify holding stock	27%	60%	11%	2%	0%
The firm makes deliberate efforts to minimize carrying cost	26%	54%	10%	10%	0%

According to the data in the table above, a considerable proportion of respondents agreed with the assertion that inventory management has a major influence on service delivery at RED CROSS. To illustrate, 86% of respondents stated that Inventory held is consumed continuously throughout the year, while 87% agreed that the firm maximizes benefit from the inventory used to justify holding stock. Approximately 80% of respondents responded that the firm makes deliberate efforts to minimize carrying cost.

4.1.6 Transport & distribution

Table 9 : Respondents view on how transport & distribution influences service delivery at RED CROSS

	SA	A	N	D	SD
The company consistently maintains reasonable transportation expenses in developing access to service delivery.	37%	41%	5%	13%	4%
The business applies transportation management strategies to promote efficiency and improve access.	28%	55%	10%	4%	3%
The company balances several transportation modalities to reduce travel time.	40%	49%	8%	3%	0%

The study's first statement questioned if the business consistently maintains reasonable transportation expenses in order to provide access to service delivery, and the responses were as follows. 37% highly agreed; 41% agreed; 5% agreed; 13% disagreed; and 5% strongly disagreed.

The study also asked whether the business uses transportation management strategies to improve efficiency and access, and the following are the results: 28% highly agreed; 55% agreed; 10% agreed; 4% disagreed; and 3% strongly disagreed. The respondents were then asked whether the company balances multiple forms of transportation to save travel time. 36% agreed, 48% agreed, 8% were undecided, 6% disagreed, and 2% strongly opposed.

4.2 Chapter Summary

The findings, which were evaluated by the researcher using both qualitative and quantitative methods, are reported in the chapter, along with an analysis of the response rate.

CHAPTER FIVE

SUMMARY, RECOMMENDATIONS AND CONCLUSIONS

5.0 Introduction

This section of the study provides a summary of the research findings, recommendations, and conclusion. The results are presented in accordance with the variables examined in the study.

5.1 Summary of findings

5.1.1 Background Information

The response rate was strong, with 92% of the 56 questionnaires issued to members of the institution returning. The fact that the vast majority of surveys were completed illustrates the reliability of the data collected.

According to the data, 62% of the respondents identified as male, while 38% identified as female. This demonstrates that the majority of the RED CROSS employees were male.

In terms of age, 42% of respondents said they were between 35 and 45 years old, 19% said they were under 25 years old, 29% said they were between 25 and 35 years old, and 10% said they were above 45 years old. This means that the majority of RED CROSS employees were between the ages of 35 and 45.

According to the data, 48% had worked in their company for between one and five years, 27% for between five and ten years, 10% for more than ten years, and 15% for less than one year. This demonstrates that the majority of the RED CROSS headquarters employees had been with the organization for between one and five years.

5.1.2 What is the influence of strategic sourcing on service delivery at RED CROSS?

The data show that the sourcing function is always improving the quality of suppliers. Among the responses, 53% strongly agreed, 41% agreed, and 6% were indifferent. Notably, nobody of the respondents strongly objected nor strongly agreed with the statement. The second inquiry under this variable looked at whether the sourcing function consistently shortens buy lead times. Among the responses, 59% strongly agreed, 37% agreed, and 4% were indifferent. Neither of the respondents strongly disagreed nor agreed. The study's goal was to determine if the company is aware of the quality of the items utilized in service delivery. According to the data, 48% of

participants strongly agreed with this viewpoint, 27% agreed, 4% were neutral, 11% disagreed, and 10% strongly disagreed.

5.1.3 To what extent does technology influence service delivery at REDCROSS?

The first study question was to identify how technology is utilized to disseminate information across the supply chain. The responses received were as follows: 41% of those polled strongly agreed, 34% agreed, 9% were indifferent, 12% disagreed, and 4% strongly disagreed.

The study also looked at whether the business employs technology to improve organizational flexibility, with 39% highly agreeing, 34% agreeing, 5% neutral, 15% disagreeing, and 7% strongly disapproving. The last statement of the investigation tried to determine if most supply chain procedures are automated; 13% strongly agreed, 77% agreed, 3% were neutral, 7% disagreed, and 0% strongly disagreed.

5.1.4 What is the influence of inventory management on service delivery at REDCROSS?

According to the statistics in the table above, a large number of respondents agreed with the premise that inventory management has a big effect on service delivery at RED CROSS. For example, 86% of respondents claimed that inventory is utilized constantly throughout the year, while 87% agreed that the business optimizes the advantage from the inventory used to justify maintaining stock. Approximately 80% of respondents said the company made conscious efforts to reduce carrying costs.

5.1.5 What is the impact of transport and distribution on service delivery at REDCROSS?

The study's first statement questioned if the business consistently maintains reasonable transportation expenses in order to provide access to service delivery, and the responses were as follows. 37% highly agreed; 41% agreed; 5% agreed; 13% disagreed; and 5% strongly disagreed.

The study also asked whether the business uses transportation management strategies to improve efficiency and access, and the following are the results: 28% highly agreed; 55% agreed; 10% agreed; 4% disagreed; and 3% strongly disagreed. The respondents were then asked whether the company balances multiple forms of transportation to save travel time. 36% agreed, 48% agreed, 8% were undecided, 6% disagreed, and 2% strongly opposed.

5.2 Conclusions

The study's conclusions were derived from the findings that inventory management has an impact on the provision of services by specific humanitarian organizations. The most significant determinant of inventory management was found to be days in inventory.

Technology has an effect on the service delivery of a subset of humanitarian organizations in Kenya, according to the findings of the study. The most influential aspect of technology was its application in resource planning. By implementing Enterprise Resource Planning systems, humanitarian organizations can streamline critical operations, optimize resource allocation, and increase organizational flexibility; these improvements improve accountability and operational efficiency.

The research findings indicated that the provision of services by specific humanitarian organizations in Kenya was most significantly impacted by transportation and distribution. The utilization of transport management practices had the greatest impact on distribution and transportation; humanitarian organizations can reduce transportation-related costs, transit times, and service accessibility by employing modern transport management practices.

5.3 Recommendations

Humanitarian organizations are advised by the study to incorporate technology into their supply chain operations in order to precisely identify organizational needs and demands. This integration should be complemented by improved resource capabilities that enable organizations to effectively address contemporary inventory management challenges.

Additionally, the study advises humanitarian organizations to establish standard operating procedures and a sourcing strategy to ensure that the sourcing process is competitive and free from manipulation. In order to maintain the strategic nature of the procurement function, aid organizations should also ensure that relevant personnel are consistently updated on the latest trends.

In order to reduce the exorbitant expenses linked to the transportation sector, humanitarian organizations ought to contemplate adopting environmentally sustainable practices. Humanitarian organizations can mitigate their environmental impact and reduce transportation and distribution expenses while simultaneously reducing greenhouse gas emissions by adopting greener and more sustainable modes of transportation. Additionally, it is suggested that humanitarian organizations invest in a transportation management system in order to manage their fleets more effectively.

Additionally, the study advises humanitarian organizations to allocate resources towards the acquisition of tailored technology that will optimize their operational processes. Technology should integrate all facets of the supply chain in order to provide the necessary synergy and enable measurement of that synergy for decision-making purposes. Additionally, by facilitating communication and time management, the technology ought to support the administration of personnel responding to disasters.

5.4 Suggestions for Further Studies

To ensure findings are comparable, the study suggests that additional research be conducted on the same subject matter, concentrating on other industries such as healthcare and hospitality. Analogous inquiries might be conducted in various regions across the globe to ascertain supplementary benchmarks in the realms of disaster response and service provision. Additionally, human resource capability and other factors that may have an impact on service delivery in humanitarian organizations in Kenya must be utilized.