

**SUPPLY CHAIN INNOVATION AND PERFORMANCE OF
HUMANITARIAN ORGANIZATION: A CASE OF THE
WORLD FOOD PROGRAMME**

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DECLARATION

This research proposal is my original work and has not been presented to any other institution of learning for the award of an academic certificate.

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This research proposal has been submitted for oral defense with my approval as the student supervisor.

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The completion of this project was not easy. It was not created by the researcher alone, but relied on the cooperative assistance of many unforeseen hands. It has enabled me face new challenges of new situations with more confidence and broadened my analytical skills.

My sincere appreciation goes to my supervisor Nyamwange for taking me through the research process, right from proposal writing, and presentation through to analysis and conclusions. His skillful guidance, constructive criticism, patience enthusiasm and suggestions supported the efforts to get the project successfully completed.

DEDICATION

To my family for their support.

ABSTRACT

The objectives of this study were to determine the impact of supply chain innovation on supply chain process improvement and organizations performance in world food program and the challenges facing supply chain innovation in humanitarian organizations. This study adopted a descriptive study design in meeting its objectives. It sought answers to three main questions: what are the supply chain innovations used by world food program? What is the impact of supply chain innovation on supply chain process improvement in world food program? And what are the challenges facing supply chain innovations Humanitarian organization?

After conducting a study on world food program, it was established that humanitarian organizations are involved in supply chain innovation. Some of the supply chain innovation indulged in most include are enterprise resources planning, use mobile computers, wireless LANs and distribution network optimization and least supply chain innovations adopted were Bokode, wave picking and pick by voice technology.

The study concluded that Supply chain innovation is evident in humanitarian organization. This has been shown by a study conducted in world food program. Most of the innovations in supply chain were centered on use of technology. This is important in humanitarian organizations because the services they are offering rely on receipt and sharing of information. The researcher recommends that, although the study show that humanitarians organization adopt supply chain innovation, the management of these organizations needs to ensure that they adopt more innovation from business organization.

TABLE OF CONTENTS

DECLARATION.....	ii
ACKNOWLEDGEMENT.....	iii
DEDICATION.....	iv
ABSTRACT.....	v
CHAPTER ONE: INTRODUCTION	1
1.1 Background.....	1
1.1.1 Supply Chain Innovation and Performance	2
1.1.2 Humanitarian Organizations in Kenya.....	4
1.2 Research Problem.....	6
1.3 Research Objectives	8
1.4 Value of the Study	9
CHAPTER TWO: LITERATURE REVIEW.....	10
2.1 Introduction	10
2.2 Supply Chain Innovation	10
2.2.1 Supplier Cooperation	12
2.2.2 Supply Chain Efficiency	13
2.2.3 Quality Management Practices	14
2.3 Humanitarian Supply Chains.....	14
2.3.1 Humanitarian Logistics	16
2.3.2 Humanitarian Inventory Management	17
2.3.3 Humanitarian Supply	18

2.3.4 Humanitarian Demand	19
2.3.5 Humanitarian procurement	19
2.4 Innovation Objectives of Humanitarian Organization.....	20
2.5 Organizational Performance in Humanitarian Organization	21
2.5.1 Humanitarian Performance Management	23
2.6 Supply Chain Process Improvement.....	24
2.7 Conceptual Framework	24
CHAPTER THREE: RESEARCH METHODOLOGY	26
3.1 Introduction	26
3.2 Research Design	26
3.3 Population.....	26
3.4 Data Collection.....	27
3.5 Data Analysis.....	28
CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSIONS.....	29
4.1 Introduction	29
4.2 General Information	29
4.3 Supply Chain Innovation	30
4.4 Supply Chain Innovation on process improvement.....	30
4.5 Supply Chain Innovation Impact on Performance.....	33
4.6 Challenges Faced By World Food Program when Innovating	34
CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	37
5.1 Introduction	37
5.2 Summary of the Findings	37

5.3	Conclusions	38
5.4	Recommendations	38
5.5	Limitation of the Study.....	39
5.6	Suggestions for Further Study	39
REFERENCES.....		40
APPENDICES.....		ii
APPENDIX I: Letter of introduction		ii
Appendix II: Questionnaire		ii

LIST OF TABLES

Table 4.1.	Supply Chain Innovation	30
Table 4.2.	Supply chain innovation on processes	32
Table 4.3	Coefficient of Correlation (R).....	34
Table 4.4	Challenges Facing Supply Chain Innovation.....	35

CHAPTER ONE: INTRODUCTION

1.1 Background

In today's intensively competitive global market, effective supply chain management (SCM) plays a critical role in improving organizational performance and competitive advantage (Schneller and Smeltzer, 2006). The competitive environment requires organizations to provide high quality products and services, deliver rapid service response, and develop dynamic capabilities that are congruent with the rapidly changing business environment (Teece, 2007). As organizations are seeking to achieve competitiveness, new challenges in supply chains are emerging. These include increasing demands to reduce costs, increase quality, improve customer service and ensure continuity of supply (Pearson et al., 1996). Therefore supply chain environment is characterized by, increased customer responsiveness, information integration etc. To cope, companies' have been compelled to restructure and re-engineer relentlessly, innovate, rebrand and realign. This realization requires firms to evaluate how the resources and capabilities of suppliers and customers can be utilized to create exceptional value (Schneller and Smeltzer, 2006).

Accordingly, organizations strive for efficient operations, such as value-added process improvement, reduction of delivery cost, and improved quality of products and services, while maintaining close cooperation with their suppliers According to Porter (1990), innovation is an imperative tool for organizations to gain their competitive advantage and improve organizational performance. Porter defines supply chain innovation as a complex process which deals with uncertainty in the environment, so as to provide solutions for customer needs and find new ways to better organizational processes using

new technologies According to Herzlinger (2006), supply chain innovation helps organizations achieve supply chain efficiency for more effective customer value creation e.g efficient data management, speedy processing of orders, order cycle time reduction, etc which is expected to result in a positive impact on organizational performance. Innovative applications of information technologies automatically lead to value creation for customers, increased efficiency.

Humanitarian organization receives products and services from suppliers, and then stores and distributes to each care unit based on the hospital's operation processes. Therefore, SCM includes business activities e.g. purchasing, distribution, management of suppliers) and operations that integrate a continuous, seamless flow of materials and services for aid delivery (Rivard and Royer et al., 2002; Shih et al., 2009). According to Singh et al. (2006), humanitarian supply chains processes have three types of flows: physical product flow, information flow, and financial flow. The physical product flow manages customized products and services. Information and financial flows are related to SC design decisions for effective product flow and improved organizational performance (Singh et al., 2006; Kowalski, 2009).

1.1.1 Supply Chain Innovation and Performance

In today's complex world, supply chain operations are going through profound structural changes. More and more companies rely on an intricate web of partners worldwide to carry out the elaborate processes of planning, sourcing, manufacturing and distributing their products. These companies are being challenged with increasingly shorter product cycles, varying customer demand, and heightened global competition. Pressures are further exacerbated as companies are forced to deliver products to customers nearly on

demand, while adhering to regulatory compliance requirements and meeting financial performance objectives. In addition, the rise in the use of third-party specialists like contract manufacturers, globally decentralized manufacturing sites, logistics providers, bill processors, and low-cost, in-country suppliers for sourcing can provide opportunities and at the same time create unprecedented challenges (Pandhi and Makhfi, 2011). As supply chain complexity increases, it becomes harder to manage. The path to improvement lies in facilitating collaboration between this complex web of partners; this collaboration is crucial to creating trust between the partners and improving overall operational performance, and as a result, the bottom line.

A Supply Chain Innovation (SCI) is defined as a change (incremental or radical) within the supply chain network, supply chain technology, or supply chain processes (or combinations of these) that can take place in a company function, within a company, in an industry or in a supply chain in order to enhance new value creation for the stakeholders (Arlbjørn, de Haas & Munksgaard, 2011). According to Lee (2011), supply chain (SC) innovation helps organizations achieve efficiency and quality management practices for new customer value creation, which is expected to result in improved organizational performance. In his study to examine the effects of innovation leadership, SC innovation, SC efficiency, and QM practices on organizational performance in the health care organization he found that there is positive relationships between process improvement and IT application as part of SC innovation; and SC efficiency and QM practices. In addition, the results showed the effect of operational improvement as a result of SC efficiency and QM practices on organizational performance. Krabbe (2007), in his study on Leverage supply chain innovation demonstrates that while leveraging innovation

cannot solve all challenges in supply chain, getting in the habit of learning about innovation can transform the organization from being an average company to becoming a supply chain innovator.

1.1.2 Humanitarian Organizations in Kenya

Humanitarian organizations are organizations dedicated to distributing aid. Many professional aid organizations exist, both within government (e.g. USAID, DFID, Europe Aid, ECHO), between governments as multilateral donors (e.g. UNDP) and as private voluntary organizations (or non-governmental organizations, e.g. Action Aid, Oxfam). In its most general form, humanitarianism is an ethic of kindness, benevolence and sympathy extended universally and impartially to all human beings. Humanitarianism has been an evolving concept historically but universality is a common element in its evolution.

Humanitarianism can also be described as the acceptance of every human being for plainly just being another human. Ignoring and abolishing biased social views, prejudice, and racism in the process, if utilized individually as a practiced viewpoint, and mindset. Humanitarian organization activities includes the protection of civilians and those no longer taking part in hostilities, and the provision of food, water and sanitation, shelter, health services and other items of assistance, undertaken for the benefit of affected people and to facilitate the return to normal lives and livelihoods. They also provide services that involve comprehensive and complex systems aimed at saving lives, alleviating suffering and maintaining human dignity during and in the aftermath of man made crises and natural disasters, as well as to prevent and strengthen preparedness for the occurrence of

such situation provision of home care products, information systems, wheelchairs, vehicle fleet management, and general materials (Gattorna, 1998).

According to McLachlin et al. (2009), humanitarian supply chains tend to be unstable, prone to political and military influence, and inefficient due to lack of joint planning and inter-organizational collaboration. They deal with inadequate logistics infrastructure, along with shifting origins of and/or destinations for relief supplies without warning. Further, donors often request their funds be spent on direct materials and food, and even at a particular disaster location, rather than on crucial but indirect services such as information systems, staff training, and/or disaster preparedness (Oloruntoba and Gray, 2006; Wassenhove, 2006; Kovacs and Spen, 2007). Therefore, humanitarian supply chain management does not only deal with delivering goods, materials or information to the point of consumption for the purpose of alleviating the suffering of vulnerable people, but also need to manage value to donors and other stakeholders.

Even though the structure of humanitarian chains is similar to most business supply chains, the humanitarian supply chain is often unstable (Oloruntoba and Gray, 2006). As a result, coordination and management of disaster supply chains are increasingly needed and must be put in place in the humanitarian supply chains.

Goals, revenue sources, and performance metrics of humanitarian and regular supply chains differ notably. Unlike the humanitarian supply chains, which do not have any profit targets and rely heavily on volunteers and donors, in regular supply chains, stakeholders are the “owners” of the chain. The source of revenue for humanitarian supply chain is government funding, charitable donations from individuals and

corporation, and donations in kind. The goal of humanitarian supply chain is to be able to respond to multiple interventions, as quickly as possible and within a short time frame. In addition, performance measurement in the nonprofit sector include the intangibility of the services offered, immeasurability of the missions, unknowable outcomes, and the variety, interests and standards of stakeholders .Therefore humanitarian organizations performance can be established by reflecting on the value of the work performed by applying integrative principles that allow multiple processes to be synchronized (Soosay and Sloan, 2005), supplier/ vendor evaluation, cycle times, relationships building with Supplier and financial performance (Carr and Pearson, 1999). Similarly, inter-organizational relationships are also evaluated to determine competencies are formed when there is leverage as a result of supply chain innovation.

1.2 Research Problem

One of the biggest challenges for SCM in the humanitarian organizations is managing costs while meeting customer demands (Hook, 2009). According to Quinn (2010), some of the biggest challenges for SCM in the humanitarian organizations include global increases in the demand for logistics capacity brought about by growing humanitarian needs, raising freight cost, lack of access, increased risk of losses, constrained food supply among others. All supply chain actors within a humanitarian organization from the Resource Mobilization to the Programming, Procurement and Logistics units at headquarters, regional bureaux and country offices – have one overarching objective: to meet beneficiaries' needs. This requires a reliable, agile, scalable supply chain with the capacity to adapt timely and efficiently to different types of requirements (Quinn, 2010). To tackle these challenges humanitarian organization must involve in supply chain

innovation to increase efficiency and effectiveness of their operation. Some of the SCI involved include use of modern technology to enhance flow of products and information, use of tracking devised to secure their good thus enhancing distribution and integration of supply chain. For effective SCM, organizations need to first innovate their business processes, while considering their suppliers' processes.

In recent years, there has been considerable interest of the humanitarian sector. A number of studies have been done on SCM in the humanitarian sector. For instance, Sang (2011) studied innovations and quality management practices in the health sector and found that although the concept has been widely accepted, it is still in its embryonic stages and that improved SC efficiency will result of quality management practices if they are well implemented and managed. Sang failed to address the effect of supply chain innovation on performance of these organizations. Soosay et al. (2008) examined supply chain collaboration as capabilities for continuous innovation and found that different relationships have impact on the operations of firms and their capacities to innovate. They also indicated, in their findings, that the ability to work together with partners has enabled firms to integrate and link operations for increased effectiveness as well as embark on both radical and incremental innovation. Their study concentrated on how relationships enhance continuous innovation in supply chain.

Desbarats (1999) studied the features of successful innovation supply chains and established that that small, distinct service experiences will combine to create a strong overriding impression of quality and value, and this mechanism is the foundation of achieving a strong brand. Hazen et al (2012) did a paper on supply chain innovation diffusion, where they established that post adoption activities in supply chain innovation

are almost entirely overlooked in SCM research. The above research failed to look at the impact of the supply chain innovation on performance of firms.

Wanjihia (2011) did a study on innovation management in Kenya's Manufacturing sector and found that the Kenyan manufacturing sector has done little to encourage innovation and that incentives and budgetary allocation for innovation are marginally low. Wanjihia concentrated on manufacturing firms and the results cannot be imported in wholesome and applied in humanitarian sector. For these reasons the results a research has to be done humanitarian sector.

To achieve the intended objectives of this study sought answers to the following questions: Does Supply chain innovation have an impact on SC process improvement? Does SC process impact organizational performance? And what are the challenges faced by humanitarian organization when implementing supply chain innovations?

1.3 Research Objectives

The general objective of this study was to establish the impact of supply chain innovation on humanitarian organizations' performance; however the specific objectives were;

- (i) to establish how supply chain innovation has an impact on SC process improvement and supply chain performance; and
- (ii) to examine the challenges faced by humanitarian organization when implementing supply chain innovations

1.4 Value of the Study

This study is expected to add knowledge to the fields of supply chain management and innovation management by highlighting the interrelationship between these variables.

This study provides useful planning information in the humanitarian organizations.

To policy makers this study will provide practitioners with valuable information to policy makers and managers in the humanitarian organizations/ sector. The findings will also help them to find out which innovations are critical for better organizational performance. This study is also expected to help managers as the decision makers to improve on other management practices in the humanitarian sector and identifying the major reasons as to why the humanitarian organizations should now move to embrace innovation as a strategy to enhance firm productivity now more than ever before.

To researchers and academia the study will also form a basis for interested researchers, scholars and supply chain management practitioners to research on and add to the body of knowledge on SCM and innovation management.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews different perceptions on supply chain innovation and organizational performance by other scholars.

2.2 Supply Chain Innovation

According to Rogers (2003), an innovation is defined as, an idea, practice, or object that is perceived as new by an individual or other unit of adoption. As such, nearly any contemporary idea, practice, or product that an organization wishes to adopt and employ for the purpose of obtaining gains in performance can be thought of as an innovation. For example, electronic data interchange (EDI) is an information technology used to exchange data across organizations and therefore it can be regarded as a technological innovation (Droge, 1995). In addition, ideas such as cross-docking, containerization, and even green reverse logistics are technological innovations that have been discussed in the supply chain literature (Hazen et al., 2011). Although supply chain innovations take on many forms and functions, most innovations are intended to achieve the same objective-enhancing organizational effectiveness through improved performance. This process ushers the adopting organization from first realizing a perceived need for innovation, all the way through the embedding of the chosen innovation into the organization's governance structure and work processes (Rogers, 2003).

The complete incorporation of a SCM innovation into the organization is desired by any firm seeking to realize the anticipated benefits of an adopted innovation. Firms look to

adopt supply chain innovations in hopes of realizing a variety of positive outcomes, such as to increase productivity and attain higher service levels without expending more resources (Mashelkar, 2010). Supply chain innovation has been regarded as a success factor for organizational performance. According to Byrnes, (2004) supply chain innovation provides tools to improve organizational processes needed for effective SCM through seamless interactions with suppliers, manufacturers, distributors and customers. Thus, supply chain innovation allows reduction in cost and lead time, and the development of flexibility for dealing with rapid changes in the business environment (Stundza, 2009).

The interacting content element of the SCI is found by comparing and contrasting frequently used SCM frameworks. SCM is concerned with the management of relationships in business networks and deals with both intra- and inter-organizational business processes. Furthermore, implementing supply chain technology has an explicit usage in the SCI contributions, while also mentioned in the SCM frameworks. Thus, the three interacting content elements of SCI are Supply chain business processes, Supply chain network structure, and Supply chain technology.

The SCI model applies a content perspective. The product of an innovation process is referred to as the innovation content. Formulated as a question, innovation content can be perceived as being the ‘what’ of innovation— what is the innovation for the company? In contrast, a process perspective is concerned with ‘how’ innovations are carried out. The process and content perspectives influence each other—for example, the content of an innovation may influence the way in which the process will be organized, and vice

versa—whereby if we begin with the processes, this may also influence the specific content.

According to Schneller and Smeltzer (2006), interaction between buyers and sellers influence innovation and it involves changes or developments in products, services or processes to reduce cost and/or improve efficiency. There exist several measures for supply chain innovation today. According to Will (2008), they major measures of supply chain innovation include: Supplier cooperation, supply chain efficiency and quality management practices.

2.2.1 Supplier Cooperation

Supplier cooperation has become one of the most important strategies for long-term growth of the organization (Chan et al., 2008). As costs sky rocket, organizations' managers and the governments strive to find ways to contain medical costs through more effective purchasing. Purchasing functions often include inaccurate orders or incorrect shipping from suppliers. Lambert et al. (1997) also stressed the importance of supplier cooperation. To select the best suppliers he pointed out that organizations should examine dimensions of supplier cooperation based on four attributes of suppliers: quality of product, service, price, and delivery. They further assert that supply chain managers have prioritized quality of products and services over cost reduction, even though most governments emphasize the other way around. They classified supplier cooperation in the following five categories of consistency: the supplier's delivered product, supplier actions, service, competence of sales representatives, and delivery and service-related

criteria. Therefore, an effective process of supplier cooperation will help organizations achieve their objectives.

2.2.2 Supply Chain Efficiency

In a dynamic competitive industry, organizations and suppliers must maintain a competitive advantage and position, and improve performance through efficient supply chain operations. Supply chain efficiency, refers to profitability, flexibility, reliability, and waste elimination, can be unique to each individual organization that supports better operational processes and improves speed of delivery or response to customer requests using information systems (Chen, 1997). There are a number of benefits derived from supply chain efficiency: speed in response, waste elimination, and information networks between suppliers and customers (Cigolini et al., 2004). Speed in response increases delivery lead time, captures customer consumption, and reduces operational response.

The waste elimination process includes reduced steps of supply which result in transportation cost reduction, and streamlined processes for waste reduction. When companies develop or use more efficient information networks, they can improve processes for continuous replenishment and shipping based on ordering notices. Companies can also explore other information technologies such as radio frequency identification (RFID) for transportation tracking and shared databases, and electronic data interchange (EDI) for order placement and invoicing. The internet can also improve communication with customers (Heikkila, 2002).

2.2.3 Quality Management Practices

The growing emphasis on organizational innovation necessitates the use of advanced information and communication technologies (ICTs) for supply, quality management, business process reengineering, enterprise resource planning (ERP), and customer relationship management to improve competitiveness (Flint et al., 2008). To achieve competitive advantage, organizations need innovation for better quality care/services, supply chain efficiency, and customer satisfaction based on core competencies. Quality management is a key factor in a value-added process to provide high quality products and services. Quality management practices reduces process variance, shipping damage, and delivery cycle time on the supply chains. In reducing process variance, quality management allows for improvement of delivery time and efficient operation, reduction of cycle stock and waste, and close relationships with customers and suppliers.

2.3 Humanitarian Supply Chains

The goal of humanitarian supply chain is to be able to respond to multiple interventions, as quickly as possible and within a short time frame. According to McLachlin et al., (2009), one of the characteristics of humanitarian logistics is the level of uncertainty they have to cope with. Every day, in many parts of the world, humanitarian workers are confronted with various forms of uncertainty. Given that beneficiaries' needs evolve over time and are really difficult to forecast, demand and supply vary on a daily basis. Also, there are many cause and effect interactions that affect operations. For example, an earthquake can provoke a flood if a brimming lake is formed by landslides from the earthquake. Local infrastructure may also be damaged to the extent that the supply chain

network has to be continuously rethought, along with the reconstruction of roads, airports and other key elements of the network (Gray, 2006).

Humanitarian logisticians have, therefore developed tools and methods to respond quickly to short-term changes, thereby improving the agility of their supply chain owing to market turbulence and demand (Lee, 2004). Consequently, being able to react quickly to changes is an essential capability for commercial supply chains (Swierczek, 2009). Cross-learning opportunities between business and humanitarian sectors have been listed by many authors (Gray, 2006).

Although there exists no single form of humanitarian supply chain, a typical supply chain could follow the sequence in Figure 2.1.

Figure 2.1. A typical humanitarian supply chain



Source; McCullen, P., Saw and Towill, D.R. (2006), "The Humanitarian supply chain: Supply Chain Forum: An International Journal, Vol. 7 No. 1, pp. 14-23.

This approach is common in international agencies and NGOs. Unlike most business supply chains, the humanitarian aid supply chain is often unstable. And sometimes, the supply chain breaks down at the receiving end, but it may also be unstable at its origin for two main reasons: politicized donations by governments and the competitive nature of fund-raising from private donor. The critical components of the humanitarian supply chains are: logistics management, inventory management, supplies management and procurement management.

2.3.1 Humanitarian Logistics

Humanitarian logistics is the process of planning, implementing, and controlling the efficient, cost-effective flow and storage of goods, and materials, as well as related information, from point of origin to the point of consumption for the purpose of alleviating the suffering of vulnerable people .The function encompasses a range of activities, including preparedness, planning, procurement, transport, warehousing, tracking and tracing, and custom clearance. Considering at the meaning of humanitarian logistics, it focus mainly on alleviating the affected people while the definition of humanitarian supply chain is broader and cope with more activities to response to the stakeholders in the supply chain (Langdon, 2008).

Humanitarian Logistics' gives an overview of the possibilities and limitations of collaboration both for the humanitarian sector and the business community. Humanitarian organizations often underestimate the importance and impact of proper logistics. 'It is customary to exchange product information via ERP in the business world, but the humanitarian sector at times suffers from severe confusion of tongues, with everyone

using their own product codes and terminology. Standardization of these terms through trainings, but also the active use of proven logistics concepts like vendor managed inventory and postponement might, for instance, very much improve warehouse management in the sector. In the past, humanitarian organizations did not have many opportunities to carry such measures through, because a lot of their funds were earmarked and they were only allowed to use them for specific disasters (Gray, 2006).

Logistics networks, in times of crisis, provide the essential infrastructure for the movement of both goods and services. While humanitarian aid has provided help to stricken areas and developing nations for many years, the conditions that create this need have been occurring with increasing regularity. Getting materials such as clothes, food, medicine and other basic supplies as well as the service providers such as medical workers, relief workers, and other people with critical areas of expertise to affected areas has become more frequent and more complex.

2.3.2 Humanitarian Inventory Management

Irregularity in terms of size, timings, and locations is a characteristic feature of demand patterns for relief items. This irregularity presents unique challenges to relief fulfillment system. As the number, magnitude, and complexity of global emergencies continue to increase, inventory management methods must adapt to meet these challenges. According to Tysseland (2009), organizational structure and governance of the organization contributing to the humanitarian operation are more important than physical context of the operation itself. When it comes to inventory control issues, the maturity level is different for the two cases in question.

2.3.3 Humanitarian Supply

Humanitarian or emergency supplies are those goods, materials, and equipment used by organizations to provide relief in a disaster, particularly those required to meet the essential needs of the affected population. Such supplies cover an enormous spectrum, from food, drugs, and clothing to rescue equipment, electric generators, construction materials, and tools (Butcher, 2008).

Supplies consist of relief items, personnel/volunteers, and transportation and construction resources, among others. Most of the supplies fall into the relief items category. There are specific challenges related to supplies that come from in-kind donations. First, since the quantity and mix of the supplies depend at least to some degree on the donor, there is a high uncertainty of what is going to be received. Moreover, the timing of these supplies might not be appropriate: for example, consumables that arrive too early and cannot be stored for a long time, or non-consumables that arrive after the operation was set up are wasted (Lee, 2000). There are many cases in the recent history where donated items were not needed and were not deployed to people affected by the disaster. For instance during the 1988 Armenian earthquake, 5,000 tons of drugs and consumable medical supplies were sent by international relief operations, but only 30% were immediately usable (sorted, relevant for the emergency situation, and easy to identify), and 20% of these supplies had to be destroyed by the end of 1989. This was occasioned by unsuitable donations caused bottlenecks in the supply chain, making storage and transportation processes more inefficient.

2.3.4 Humanitarian Demand

The customers in a disaster supply chain include the population at the affected area, as well as intermediate customers at local or global storage facilities. Their needs change significantly according to disaster types and the phases in the disaster timeline. Dependency of demand in disasters on these hard to measure factors and its high uncertainty are the main differences from the demand in regular supply chains. Unlike logisticians in the private sector, humanitarian workers are always faced with the unknown: when, where, what, how much, where from and how many times; in short, the basic parameters needed for an efficient supply chain setup are highly uncertain (Wassenhove, 2006).

Disasters are unique even if they occur in the exact same location, since other factors such as population structure or economic conditions could have changed since the previous occurrence. Hence, historical data is not always very useful for predicting future demand. The Procurement function must guard and mitigate against risk, understand the market, build relationships with suppliers, meet needs in a timely manner and constantly monitor performance to improve service provision hence the need for an organization to have clearly defined policies that are well understood (Flint et al.,2008).

2.3.5 Humanitarian procurement

Procurement is a key activity in the supply chain in any organization. It can significantly influence the overall success of an emergency response depending on how it is managed. In humanitarian supply chains, procurement represents a very large proportion of the total spend and should be managed effectively to achieve optimum value. Procurement works

like a pivot in the internal supply chain process turning around requests into actual products/commodities or services to fulfill the needs. According to Butcher et al. (2008), it serves three levels of users: the internal customer, programs in response to emergencies and ongoing programs and Prepositioning of stocks, for both internal customers and program needs.

2.4 Innovation Objectives of Humanitarian Organization

Drawing from Schumpeter's work, the distinction between invention and innovation is helpful: invention relates to new ideas, novel breakthroughs, and new discoveries. The key feature of an invention is its newness and the fact that, as such, it is not normally immediately ready for the market. Accordingly, innovations include not only the invention itself, but also the activities and processes designed to commercialize these new ideas. In this sense, innovation is the successful exploitation of new ideas. Furthermore, innovations may become widely used and spread to other fields through the process of diffusion. Innovation processes not only relate to processes of commercializing new ideas, but innovation also refers to the broader capability of an organization to continuously renew itself.

This is in accordance with Baumol's (2002) definition of innovation as: "the recognition of opportunities of profitable change and the pursuit of those opportunities all the way through to their adoption in practice." This is relevant to SCM as it relates to the focus of proving commercial significance by creating superior end-customer value. Humanitarian organizations innovate so as to improve the efficiency in which they deliver services to

people. This will help them reduce cost and therefore deliver values to donors and people benefiting from them.

According to Emma Quin (2010), food assistance has become increasingly sophisticated and multifaceted, the supporting logistics operations is increasingly becoming more complex and multi-modal. For instance each year, WFP distributes close to 5 million mt of food, reaching an average of 95 million beneficiaries across some of the toughest terrain on the planet. On any day, WFP operates an average of 60 aircraft, 40 ships and 5,000 trucks, moving food and other assistance to where it is needed. The importance of time sensitivity in relation to supply chains is particularly clear when people's lives are at stake. However, the logistics situation is often complicated by the heightened risks that WFP now faces in the more complex environments in which it operates. The humanitarian stakes are high regarding timeliness, given the sophisticated global media and high expectations of donor governments. The solution to these challenges can be solved by supply chain innovation

2.5 Organizational Performance in Humanitarian Organization

According to Joubert (2002), performance refers to the degree of fulfilling the requirement of a job and it is measured in terms of results .The word performance is an evasive concept and may be interpreted differently by different people. Performance can also be defined as ability to perform or capacity to achieve desired results (Langdon, 2000). Therefore performance then needs to be measured during a time period in line with an expectation, promise or target. Measurement has been recognized as a crucial element to improve an organizations' performance (Sharma et al., 2005).

Neeley et al., (1995) defines performance measurement as the process of quantifying the efficiency and effectiveness of an action. It is the process whereby an organization establishes parameters within which organizations or programs reach desired goals. Performance has been measured by growth (turnover, number of employees, market share), profitability (for example amount of profit, return on investment) and survival (Storey, 1994). However, the transformation from the industrial to the information age signaled by increasingly sophisticated customers and management practices, among other things (Johnson & Kaplan, 1987; Kaplan & Norton, 1992) has led to a focus on customers not products, relationships rather than lead times (Atkinson et al, 2006).

Kaplan and Norton (1992), devised the balanced scorecard as a measurement framework for strategic, operational and financial measures. Although extensive research has been carried out to investigate the needs and characteristics of performance measurement in large organizations, there is a distinct lack of published research on issues related to SMEs (Hudson et al., 2000). According to Fitzgerald (2007), performance measures fall within two broad categories: end results and means or determinants. Results are further subdivided into competitiveness and financial measures while means or determinants are subdivided into four broad categories namely quality of service, flexibility, resource utilization and innovation.

The performance measurement in the nonprofit sector include the intangibility of the services offered, immeasurability of the missions, unknowable outcomes, and the variety, interests and standards of stakeholders. Due to the instability of structure of humanitarian chains, the coordination and management of disaster supply chains are increasingly needed and must be put in place in the humanitarian supply chains. Goals, revenue

sources, and performance metrics of humanitarian and regular supply chains differ notably. Humanitarian supply chains do not have any profit targets and rely heavily on volunteers and donors, in regular supply chains, stakeholders are the “owners” of the chain. The source of revenue for humanitarian supply chain is government funding, charitable donations from individuals and corporation, and in kind donations (Butcher, 2008).

2.5.1 Humanitarian Performance Management

The objective of the relief chain is different from commercial supply chain. The goal of the relief chain is to provide humanitarian assistance in the forms of food, water, medicine, shelter, and supplies to areas affected by large scale emergencies. As a result, performance measurement is critical to non-governmental organizations accountability. Effective performance measurement systems would assist relief chain practitioners in their decision, help improve the effectiveness and efficiency of relief operations and must demonstrate the performance of the relief chain.

According to Lin et al. (2005), performance measurement for the humanitarian relief chain can be done by comparing performance measurement in the humanitarian relief chain with performance measurement in the commercial supply chain. The performance measurements include: Resource performance metrics (inventory holding) costs, cost of supplies, distribution costs, output performance metrics (response time), number of items supplied and supply availability and the flexibility performance metrics (ability to respond to different magnitudes of disasters, time to respond to disasters, ability to provide different types of items.

2.6 Supply Chain Process Improvement

Suppliers can meet or exceed customer expectations with high quality products and services. Thus, good supplier cooperation is critical for improving performance and maintaining competitive advantage (Lin et al., 2005). According to Fisher (1997), the physically efficient process and the market responsive process as reliable criteria for selecting the best supplier for supply chain process improvement. If an organization focuses on the physically efficient process, it may select suppliers based on cost and quality. On the other hand, if the market responsive process is a priority, the firm should choose suppliers primarily for speed, flexibility and quality.

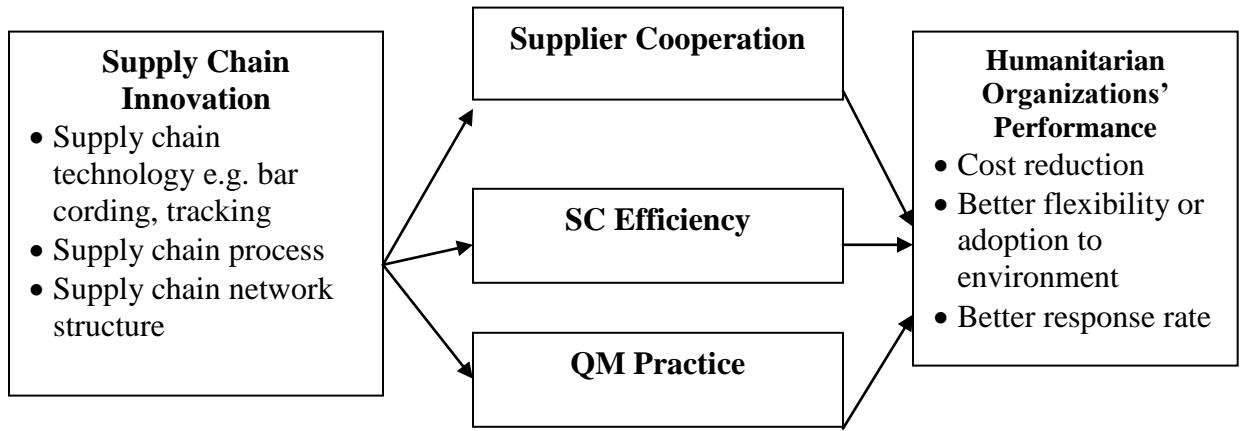
In supply chain management, long-term relationships between the supplier and customers and an organization is necessary to enhance supply chain process improvement and competitiveness (Lin et al., 2005). Thus, if an organization selects a good supplier as a partner in supply chain, the customer base can be expanded in the competitive environment. Process improvement efficiency reduces waste and the speed of process flow, and increases performance through efficient operations, thus helping maintain competitive advantage (Thompson et al., 2007).

2.7 Conceptual Framework

The conceptual model in Figure 2.2 indicates the relationship between supply chain innovation and organizational performance. Supply chain innovation influences organizational performance with intervening effect from supplier cooperation, supply chain efficiency and quality management practices. According to Kahn (2000), supply chain innovation plays a key role in developing products and services that fulfill customers' needs and values. On one hand, if an organization focuses on value creation

for customers, it can do so through customer acquisition, satisfaction, and loyalty (Kahn, 2000). On the other hand, if an organization provides its products and services by a delivery system, it must improve its SC processes through innovation to continuously search for customers' needs and values (Flint et al., 2005)

Figure 2.2 Conceptual Model



Source: Researcher (2012)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides a discussion of the research methodology that was used in this study. It outlines the overall methodology that was used to carry out this research. It includes; the research design, the research population, sampling design, data collection methods, research procedures and the methodology that the researcher used in the study.

3.2 Research Design

Descriptive research design was adopted for this research. This method describes a sample or group of subjects. The major purpose of descriptive research is to provide information on characteristics of a population. Descriptive design is used to provide clearly defined information and its findings are conclusive. It also determined the frequency with which the variables are presented. It aimed to get detailed information in order to find out the relationship between supply chain innovation and an organization's performance with specific reference to humanitarian organizations.

3.3 Population

Lumley (1994) defines population as collection of all the subjects from which a sample is drawn. The target population entailed the specific population that the researcher carried out the study. The study unit for this study is World Food Programme (WFP). The respondents of the study consisted of five of the supply chain staff at the WFP Kenya and nine respondents from WFP main suppliers. These firms have liaison offices in disaster

prone areas and the country office at Gigiri Nairobi. The respondents also include 20 recipients of world food programme services from different regions. During the study, quota sampling was employed to select the respondents that constituted the study. This was mainly to avoid sampling biases owing to the small size of the respondent. One respondent came from the strategic level (e.g. procurement manager) and the others from operational level (e.g. procurement officers, procurement buyers).

3.4 Data Collection

Primary data was collected for the purpose of this study. The data was collected through questionnaires. To collect primary data a structured questionnaire consisting of both open and closed ended questions was used in order to allow for neutrality and provide rational responses. The questionnaire was administered on a drop and pick later basis and telephone follow ups were made in order to expedite the response process.

Target respondents were supply chain managers, officers and suppliers who were expected to have adequate understanding of the variables being studied. The questionnaire was divided into three parts; part 1 sought to collect general information about the respondents' organization while, part 2 obtained information on the various types of supply chain innovations found in the organization, part 3 sought information on process improvement. Lastly part 3 collected information on the organizations' performance. A letter of introduction was issued to each respondent prior to the research. (See attached Appendices I and II).

3.5 Data Analysis

The completed questionnaires were checked for completeness, edited for errors and omissions before being coded and the data entered. The data was organized and summarized using descriptive statistics. Data collected from part 1 of the questionnaire was measured on a nominal scale and was then be quantified using dummy variables for purposes of doing higher levels of analysis.

To establish the effect of supply chain innovation on supply chain process improvement, descriptive statistics such as measures of central tendencies like means, medians and modes were used, utilizing data captured in part 2 and 3 of the questionnaire. To determine the relationship between supply chain innovation and organizational performance, correlation analysis was carried out by analyzing information obtained from part 2 and 3 of the questionnaire. Content analysis was used to analyze qualitative data captured in the questionnaire to aid in making inferences by systematically and objectively identifying specified characteristics of information and used to support the results of quantitative analysis.

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter presents analysis, interpretations and findings of the study as set out in the research methodology. The analysis is both quantitative and qualitative. The chapter is structured according to the questions in the questionnaire and provides discussion of the findings together with their implications. The results are presented on supply chain innovation and performance of humanitarian organization. The data was gathered exclusively from questionnaire as the research instrument. The questionnaire was designed in line with the objectives of the study. Moreover the additional data and observations, gained from the study have been incorporated into the discussion.

The study sampled 34 respondents in world food program's supply chain. Out of the targeted 34 target respondents, 24 responded by completing the questionnaire, thus achieving a response rate of 70.58 %. This response rate was considered statistically sufficient for further analysis. To ensure accurate data collection, the respondents were first notified of the study and the questionnaire was administered on a drop and pick basis. Follow ups were done by means of telephone calls to expedite the process.

4.2 General Information

The study sought to find out the distribution of the respondent as per the area of the supply chain. The demand side (recipients of world food program services) accounted for the highest response rate at 62%, followed by supply side (suppliers) at 22 % followed by then respondents from world food program at 16 %. The high response rate was attributed the constant follow up by the researcher.

The respondents were asked to fill the highest level of education they have attained. This question was important to the researcher because it determined the validity of the questionnaires that were returned. Majority of the respondents were undergraduate degree holders. They represented 77% of the respondent. The minority were master degree holders representing only 5% of the respondents.

The respondents were asked to fill how many years they have worked for the firm. A majority of them (54%) had worked for the organization between three to five years while 1% had worked for the organization for more than 10 years.

4.3 Supply Chain Innovation

Different organizations involve themselves in different supply chain innovation. The study sought to determine major the supply chain innovations that are indulged in by world food program. The respondents were asked to indicate in a scale of 5-1 where 5 represents greatly indulged in and 1 not indulged in, the rate at which the indicated supply chain were used in the organization. The results are shown in table 4.1.

Table 4.1. Supply Chain Innovations

Supply chain innovation	Mean	Standard deviation
Enterprise resource planning (ERP)	4.43	0.55
Mobile computers	4.23	0.43
Wireless LANs	4.17	0.46
Distribution network optimization	4.12	1.05
Electronic data interchange -EDI (sharing of information electronically)	4.07	0.72
Advanced planning systems (APS)	4.03	1.01
e-procurement e.g. e-tendering,	3.87	0.75
Supplier partnership and collaboration	3.85	1.30

Bar code scanners,	3.83	0.45
Global positioning systems (GPS)	3.83	0.45
Supply chain integration	3.62	0.55
Radio frequency identification (RFID)	3.42	0.53
Bokode	2.98	1.23
Wave picking	2.43	1.14
Pick-by-voice technology	2.21	0.22

Source research data

The results indicate that major supply chain innovations are enterprise resources planning, use mobile computers, wireless LANs and distribution network optimization.

The reason could because of the need to share information is valued more.

Evangelista, McKinnon, Sweeney and Esposito (2012) argue that ICT is considered one of the most prominent innovation domains in the supply chain. A growing number of companies have adopted new information systems and technologies for supporting their logistics and SCM operations. Examples include Dell, Wal-Mart, Cisco Systems, Intel, Celestica and General Electric. This is not limited only to business corporate. The main benefits achieved by these companies relate to end-to-end visibility, reduced cycle time and inventories, minimization of the bullwhip effect, and improvements in the effectiveness of distribution channels. This supports the view that ICT has a profound impact on the management of supply chains as new technologies greatly facilitate the flow of information, extend control over remote operations and across organizational boundaries and automate processes.

The least supply chain innovations adopted were Bokode, wave picking and pick by voice technology with mean 2.98, 2.43 and 2.21 respectively and standard deviation 1.23, 1.14 and 0.22 respectively.

4.4 Supply Chain Innovation on Process Improvement

The study also determined the supply chain innovation on improvement of processes. The respondents were asked to rate to what extent supply chain innovation has led to the listed process improvement with 5 being to the greatest extent and 1 to no extent. The results are presented in table 4.2.

Table 4.2 Supply chain innovation on processes

	Mean	Standard deviation
Speed in information flow (communication)	4.47	0.64
Response rate to disaster	4.41	0.74
Speed of flow of goods	4.40	0.63
Improved transportation management through real-time visibility	4.27	0.59
Resource mobilization	4.22	0.59
Processing lead times	4.13	0.74
Delivery performance	3.73	1.10
Disaster assessment efficiency	3.53	1.30
Decision making	3.20	1.32
Supplier relationship	2.72	0.64

Source (research data)

The study determined that the greatest impact of supply chain innovation was on the flow of information, response to disaster and speed of flow of goods. The reason is because the

organization indulges more with supply chain innovation that enhance information flow such as the use of ERP.

The major supply chain innovations in humanitarian organizations are centered on ICT that enhances information management. This result is supported by a report by United Nation (2002) that argues that, timely and accurate information is recognized as integral to humanitarian action in both natural disasters and complex emergencies. The international humanitarian community's ability to collect, analyzes, disseminate and act on key information is fundamental to effective response. Better information leading to improved response directly benefits affected populations. Over time, improved assessment of impacts and responses through better data collection and management contributes to a more complete global database on disaster impacts, leading to better risk management contributes to a more complete global database on disaster impacts, leading to better risk assessment and targeting of prevention and preparedness activities.

4.5 Supply Chain Innovation Impact on Performance

To determine the relationship and quantify the strength of the relationship between supply chain innovation and performance of the organization, the study used Karl Pearson's coefficient of correlation (r) to study the correlation between the study variables and the findings were as in the table 4.3. The variables chosen for the study are supply chain performance, supply chain technology, quality management policies and supply chain structure.

From the findings, it was clear that there was a positive correlation between supply chain performance and SCT shown by a correlation figure of 0.242, it was also clear that there was a positive correlation between supply chain performance and supply chain network

structure with a correlation figure of 0.103, it was further evident that there was a positive correlation between quality management practices and supply chain performance with a correlation value of 0.14.

Table 4.3 Coefficient of Correlation (R)

	Supply chain performance	Supply chain process	Supply chain network structure	Supply Chain technology	Quality management practice
Supply Chain Performance	1				
Sig. (p-Values)					
Supply chain process	.119	1			
Sig. (p-Values)	.365				
Supply chain network structure	.103	.097	1		
Sig. (p-Values)	.435	.461			
Supply Chain Technology	.242	.362	.213	1	
Sig. (p-Values)	.063	.004	.102		
Quality management practice	.143	.134	.335	.260	1
Sig. (p-Values)	.274	.309	.009	.045	

Source: Survey Data, 2012

4.6 Challenges Faced By World Food Program when Innovating

There are a number of challenges facing supply chain innovation in World Food Program. In a Likert scale of 1-5, the respondents were asked to rate the extent to which the listed factors hampered effective supply chain innovation. The respondents were also asked to add other challenges that they perceive are affecting innovation. However no significant additions were made by the respondents in this regard. The findings were captured in Table 4.4

Table 4.4 Challenges Facing Supply Chain Innovation

Challenges	Mean	Standard deviation
Resistance to change by employees	4.27	0.46
Limited Financial resources	4.22	1.05
Discontinuous innovation implementation	4.17	0.72
Organizations Rules, procedures and policies	4.03	1.01
Demand uncertainty	3.87	0.75
Supply uncertainty	3.28	0.87
Lack of creativity	1.25	0.30

Source (research data)

The study found that resistance to change by employee and financial resources were cited as the major challenges. Most supply chain innovation requires a lot requires huge financial resources especially when procuring supply chain technology.

This result is supported by McLachlin et al. (2009), who argues that humanitarian supply chains tend to be unstable, prone to political and military influence, and inefficient due to lack of joint planning and inter-organizational collaboration. They deal with inadequate logistics infrastructure, along with shifting origins of and/or destinations for relief supplies without warning. Further, donors often request their funds be spent on direct materials and food, and even at a particular disaster location, rather than on crucial but indirect services such as information systems, staff training, and/or disaster preparedness (Oloruntoba and Gray, 2006; Wassenhove, 2006; Kovacs and Spen, 2007). All these pose a challenge to supply chain innovation in humanitarian organization.

The study also indicates that supply chain innovation in world food program is least affected lack of creativity with mean 1.25 and standard deviation 0.3. Some respondents cited other challenges such as lack of cooperation's from suppliers and corruption.

Innovation is no longer an in-house activity controlled by one organization. The innovation process comprises both customers and existing suppliers in complex interactive relationships. Anderson and lilliecreutz (2003) argues that complexity of managing complex-like interactive and dynamic structures become even further complicated when the risk and uncertainty regarding technological aspects are open and not yet settled. This has presented a great challenge in managing supply chain innovation in any organization.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings from chapter four, and it also gives the discussions, conclusions and recommendations of the study based on the objectives of the study. The objectives of this study were to determine the impact of supply chain innovation on supply chain process improvement and organizations performance in world food program and the challenges facing supply chain innovation in humanitarian organizations.

5.2 Summary of the Findings

This study adopted a descriptive study design in meeting its objectives. It sought answers to two main questions: How supply chain innovation has an impact on SC process improvement and supply chain performance? And what are the challenges facing supply chain innovations humanitarian organization?

After conducting a study on world food program, it was established that humanitarian organizations are involved in supply chain innovation. Some of the supply chain innovation indulged in most include are enterprise resources planning, use mobile computers, wireless LANs and distribution network optimization and least supply chain innovations adopted were Bokode, wave picking and pick by voice technology.

The study wanted to establish the impact the supply chain innovation on supply chain processes. It was found that the major impact of supply chain innovation was on the flow of information, response to disaster and speed of flow of goods.

Lastly the study also determined the challenges that faced supply chain innovation in humanitarian organizations. The study established that resistance to change by employee and financial resources were the major challenges facing supply chain innovation in humanitarian organization.

5.3 Conclusions

Supply chain innovation is evident in humanitarian organization. This has been shown by a study conducted in world food program. Most of the innovations in supply chain were centered on use of technology. This is important in humanitarian organizations because the services they are offering rely on receipt and sharing of information. The study show that the supply chain innovation has led to the increase of flow of information, response to disaster and speed of flow of goods.

Humanitarian organization faces a lot of challenges when it comes to adoption of supply chain innovation. The survey established that humanitarian organizations' supply chain innovations are faced to a great extent with resistance to change by employee and lack of financial resources challenges. This is brought about by reliance on donor funds and employees fearing change.

5.4 Recommendations

Although the study show that humanitarians organization adopt supply chain innovation, the management of these organizations needs to ensure that they adopt more innovation from business organization. These will enable them to gain more benefits. They also need to bench mark themselves with world class organization practicing supply chain innovation. The organization should improve the relationship they have with suppliers. The challenges that the humanitarian organizations, experience in supply chain

innovation are a means towards continuous improvement. Tackling these challenges and hence improve their supply chain performance, should be one of the main objectives of any organization.

5.5 Limitation of the Study

The major problem encountered during the study was the unwillingness of some respondents to provide some information. This together with the fact that the organization has very few supply chain officers the respondents who were required to fill some information, led to acquisition of limited information. The study was also limited in scope as it only covered world food program. Ideally in a study of this kind, one would wish to conduct a survey of a number of humanitarian organizations.

5.6 Suggestions for Further Study

This study has a number of issues that can be addressed in future research first, the data used in this study limits generalization to corporate organization. A confirmatory analysis and cross-sector validation using a large sample gathered from other humanitarian organizations is required for greater generalization of the impact of supply chain innovation on supply chain performance among humanitarian organization.

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APPENDICES

APPENDIX I: Letter of introduction

Dear Sir/ Madam,

RE: MBA RESEARCH

I ‘am a student at The University of Nairobi (UON), pursuing a Master of Business and Administration (MBA). I’ am undertaking a research project in partial fulfillment of the academic requirements my study is on “*SUPPLY CHAIN INNOVATION AND PERFORMANCE OF HUMANITARIAN ORGANIZATIONS: A CASE OF THE WORLD FOOD PROGRAMME*”.

Your organization has been selected to form part of the study. I will be very grateful if you would spare sometime from your busy schedule, to respond to the questions listed on the attached questionnaire.

Your response will be treated with uttermost confidentiality. The findings of this research may be availed to you upon completion of the research if you so request.

Your assistance and co-operation will be highly appreciated.

Yours faithfully,

Makuba Xavier
UON MBA STUDENT

Appendix II: Questionnaire

I am a postgraduate student at University of Nairobi school of Business. I am conducting a research on '*Supply Chain Innovation and performance of Humanitarian Organizations: A Case of the World Food Program*'. This study is being carried out in partial fulfillment of the Award of a Master of Business Administration Degree of the University of Nairobi.

Part 1: Biographical and organizational details.

1. Name of the organization

2. Kindly indicate the highest level of education have you attained?

Primary education Secondary education College education

Undergraduate degree Masters Degree Doctorate

Others (Indicate).....

3. Position you hold in the organization

4. Number of years you have worked in the organization

Part 2: Supply chain practices and supply chain innovation

5. In a scale if 1-5, alongside each supply chain innovation kindly indicate the extent to which you think your organization indulges in where 5= to a greater extent, 4= to a moderate extent, 3= to a small extent , to a very small extent and 1= not indulged in.

Supply chain innovation	5	4	3	2	1
e-procurement e.g. e-tendering,	[]	[]	[]	[]	[]
Order fulfillment	[]	[]	[]	[]	[]
Supplier partnership and collaboration	[]	[]	[]	[]	[]
Radio frequency identification (RFID)	[]	[]	[]	[]	[]

Pick-by-voice technology	[]	[]	[]	[]	[]
Electronic data interchange -EDI (sharing of information electronically)	[]	[]	[]	[]	[]
Advanced planning systems (APS)	[]	[]	[]	[]	[]
Bar code scanners,	[]	[]	[]	[]	[]
Enterprise resource planning (ERP)	[]	[]	[]	[]	[]
Mobile computers	[]	[]	[]	[]	[]
Wireless LANs	[]	[]	[]	[]	[]
Bokode (A bokode is a type of data tag which holds thousands of times more information than a barcode over the same area).	[]	[]	[]	[]	[]
Wave picking	[]	[]	[]	[]	[]
Global positioning systems (GPS)	[]	[]	[]	[]	[]
Supply chain integration	[]	[]	[]	[]	[]
Distribution network optimization	[]	[]	[]	[]	[]
Others (specify)	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]

6 Indicate in scale of 1-5, the extent to which the following processes have improved after indulging in the above supply chain innovation (Where 5= great improvement 4= moderate improvement, 3= small improvement, 2 very small improvement and 1= no improvement at all).

	5	4	3	2	1
Speed in information flow (communication)	[]	[]	[]	[]	[]
Planning/ forecasting	[]	[]	[]	[]	[]
Increase collaboration with supplier	[]	[]	[]	[]	[]
Speed of flow of goods	[]	[]	[]	[]	[]
Response rate to disaster	[]	[]	[]	[]	[]

Supplier relationship	[]	[]	[]	[]	[]
Processing lead times	[]	[]	[]	[]	[]
Delivery performance	[]	[]	[]	[]	[]
Decision making					
Improved transportation management through real-time visibility	[]	[]	[]	[]	[]
Disaster assessment efficiency	[]	[]	[]	[]	[]
Resource mobilization	[]	[]	[]	[]	[]
Others (specify)	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]

Part 3: supply chain innovation and organizations performance and challenges

7. In the scale of 1-5 indicate how the use of the above supply chain innovation has led to improved organization performance (Where 5= great improvement, 4= moderate improvement, 3= small improvement, 2 very small improvement and 1= no improvement at all).

	5	4	3	2	1
Service provision	[]	[]	[]	[]	[]
Reduction in waste (eg. goods getting spoilt etc)	[]	[]	[]	[]	[]
Security of goods and personnel	[]	[]	[]	[]	[]
Response speed	[]	[]	[]	[]	[]
Number of people covered (capacity)	[]	[]	[]	[]	[]
Partnership (inter-agency logistics services)	[]	[]	[]	[]	[]
Transportation capacity	[]	[]	[]	[]	[]
Preparedness	[]	[]	[]	[]	[]
Supplier satisfaction	[]	[]	[]	[]	[]
Cost efficiency	[]	[]	[]	[]	[]
Quality management	[]	[]	[]	[]	[]

Accountability	[]	[]	[]	[]	[]
Field-level coordination and prioritization in specific sectors/areas of response.	[]	[]	[]	[]	[]
Maximization of resources	[]	[]	[]	[]	[]
Inventory management	[]	[]	[]	[]	[]
Percentage of demand supplied	[]	[]	[]	[]	[]
Meeting donor expectation	[]	[]	[]	[]	[]
Others (specify)	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]

8. Identify the extent to which the following challenges affect supply chain innovation management (where 5= to a greater extent, 4= to a moderate extent, 3= to a small extent, to a very small extent and 1= does not affect)

Challenges	5	4	3	2	1
Resistance to change by employees	[]	[]	[]	[]	[]
Financial resources	[]	[]	[]	[]	[]
Discontinuous innovation implementation	[]	[]	[]	[]	[]
Organizations Rules, procedures and policies	[]	[]	[]	[]	[]
Demand uncertainty	[]	[]	[]	[]	[]
Others (specify)	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]
	[]	[]	[]	[]	[]

Thank you.