THE ROLE OF SUPPLY CHAIN INTEGRATION ON THE ORGANIZATIONAL PERFORMANCE OF THE INTERNATIONAL RESCUE COMMITTEE ETHIOPIA

By

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A Thesis Submitted to the Addis Ababa University, School of Commerce for the Partial Fulfillment of the Requirements of the Degree of Master of Arts in Logistics and Supply Chain Management

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Declaration

I, Capital Berhanu, hereby declare that the study entitled “The Role of Supply Chain Integration on Organizational Performance of International Rescue Committee Ethiopia is my original work and has not been presented at Addis Ababa University School of Commerce or any other University. I have carried out the study independently with the guidance and support of the research advisor Shiferaw Mitiku (PhD). All other contributors or sources used for the thesis have been duly acknowledged.

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Approval

The undersigned certify that they have read and hereby recommend to the Addis Ababa University School of Commerce to accept the Thesis submitted by Capital Berhanu entitled "The Role of Supply Chain Integration on Organizational Performance of International Rescue Committee Ethiopia "in partial fulfillment of the requirements for the award of a Master's Degree in Logistic and Supply Chain Management complies with the regulations of the Addis Ababa University and meets the accepted standards with respect to originally and quality.

Name of Supervisor Shiferaw Mitiku (PhD) Signature ……

Date …….

Name of Internal Examiner ...…….. Signature……

Date……

Name of External Examiner …… Signature……

Date……

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Lists of Abbreviations and Acronyms

IRC	International Rescue Committee
OP	Organizational Performance
HOs	Humanitarian Organization
HSC	Humanitarian Supply Chain
HSCI	Humanitarian Supply Chain Integration
HSCM	Humanitarian Supply Chain Management
HSCOs	Humanitarian Supply Chain Organizations
SCMI	Supply Chain Management Integration
INGOs	International Non-Governmental Organizations
IE	Internal Integration
IRC	International Rescue Committee
NGO	Non-governmental Organization
SOP	Standard Operating Procedure
KPI	Key Performance Indicator
SC	Supply Chain
SCP	Supply Chain Practice
SCI	Supply Chain Integration

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Abstract

Supply Chain integration is considered one of the ways through which humanitarian organizations can be more competitive to achieve their goals and thus better perform. The purpose of this study was to examine the role of supply chain integration on the performance of the international rescue committee in Ethiopia. Specifically, the study examines the variables of Supplier integration, Information integration, Resource sharing and coordination, and Internal process integration that affect the performance of the international rescue committee in Ethiopia. The study used the descriptive and explanatory design of research with both quantitative and qualitative research approaches. The study employed a stratified simple random sampling technique to select the respondents. The sample size of the study is 148 respondents who are user officer-level employees related to supply chain lines in selected branches of the international rescue committee in Ethiopia. Questionnaires as data collection instruments were used accordingly. The collected data were analyzed using both descriptive and inferential statistics using the statistical package for social science (SPSS) 21 to identify the significant effect of the independent variable on the dependent variable. Quantitative data were analyzed using both descriptive and inferential statistical techniques. Descriptive statistics included means, standard deviation, frequencies, and percentages while inferential statistics used correlation and regression analysis. Multiple regression models were developed and were used to guide the study. The findings of the study revealed that there is a positive and statistically significant relationship between SCI and organizational performance. All four independent variables were statistically significant with a p-value of less than 0.05. It is recommended that the international rescue committee in Ethiopia should embrace all dimensions of supply chain integration practices to enhance their organization's overall performance.

Key Words: Performances of International rescue committee, Humanitarian Supply Chain Integrations, Information Integrations, Resource sharing and Coordination, Internal Process Integrations

CHAPTER ONE

Introduction

The background of the study, the problem statement, the research question, the study's purpose, its significance, its scope, its limitations, and the organization of the paper are all presented in this section of the paper.

1.1Background of the Study

Supply chain management (SCM) is a recently developed discipline that involves integrating all value-adding elements in the supply, production, and distribution, from sourcing raw materials to end-user utilization (Singh and Sohani, 2011).

Organizations are striving to maximize supply chain performance by utilizing various strategies and leveraging their capabilities in order to achieve competitive advantages in the modern era (Nyile et al., 2021).

Humanitarian logistics is a specialized field that focuses on planning and coordinating logistical operations during complex emergencies or disaster relief efforts. The primary objective of humanitarian operations is to provide assistance to people in need. Logistics plays a critical role in disaster relief by coordinating tasks such as transportation, warehousing, and delivery of goods to affected areas (Gursoy et al., 2010) (ISMAEL, 2017).

The design of a humanitarian supply chain aims to ensure that aid organizations are not exploited when procuring goods and services during emergencies. Supply chain professionals worldwide are continuously searching for innovative approaches to build efficient and effective supply chain designs that can adapt to rapidly changing catastrophic situations (Nyile et al., 2021) (Kiswili Nyile et al., 2021).

Reliable logistics processes in item procurement, transportation, and warehousing during humanitarian operations require high levels of coordination, cooperation, and collaboration among aid providers. In the initial response phase, coordination and collaboration are crucial when non-governmental organizations (NGOs) assess the needs of beneficiaries by sending assessment and coordination teams to the affected area (Wankmüller and Reiner, 2020).

Ethiopia is also confronted with longstanding conflicts caused by different factors, competition for limited resources, land disputes, inadequate social services, development challenges, and weak governance. In recent years, intercommunal violence has led to the displacement of approximately 2.7 million people in Ethiopia, with 1.4 million people displaced within the first six months of 2018 alone, making it the country with the leading level of internal displacement in the world in 2018 (Wanner Brian & Shale, 2017).

Lack of internal integration and differences in team objectives can lead to redundant work and inappropriate use of resources, negatively impacting quality and cost performance. Although the breadth of supply chain integration has been found to be significantly associated with improved performance, the majority of supply chains are not effectively integrated in practice (Flynn et al., 2010). This study works to address the aforementioned gaps by assessing the role of supply chain integration on the organizational performance of IRC Ethiopia.

1.2. Statement of the Problem

Unstructured and non-strategic attempts to manage the complexity of supply chains can result in worse than ideal results, resource waste, and even fatalities. To reduce complexity and enhance humanitarian responses, supply chains must be planned and managed effectively during emergencies (Van Wassenhove, 2006; Tomasini & Wassenhove, 2009).

The need for improving the delivery of humanitarian aid has gained attention due to perceived drawbacks in aid delivery systems following major crises (Thomas & Kopczak, 2005).

Significant issues like higher inventory prices, longer procurement times, lower-quality products, and inaccurate product projections are caused by a lack of supply chain integration. The customer satisfaction is eventually impacted by these problems, which not only affect the main organization but also all other supply chain participants (Flynn et al., 2010; Wong et al., 2011).

Inadequate internal integration and team heterogeneity can result in resource waste and redundant effort, which have a detrimental influence on quality and cost performance (Weingarten et al., 2012). M. Pagell (2004).

Coordinating and integrating supply chains pose challenges due to the vast and complex supply network involving multiple stakeholders, Managing the coordination of these entities, along with

the delivery of various items, becomes challenging (Nyamu, 2012). Studies on humanitarian logistics challenges, such as the one focusing on lessons learned from Somalia, emphasize the need for further knowledge and standards to improve the effectiveness of supply chains integration (Van Wassenhove, 2006) (Nyamwange and Nyaguthie, 2004).

The uncertainty in demand and supply, coupled with time pressure to provide timely assistance, creates significant hurdles in humanitarian relief supply chains. This complexity makes the field the most cost incurring component of total expenditures during disaster relief efforts (Van Wassenhove, 2006).

In response to global crises, conflicts, and climate change, the IRC has expanded its programming across various outcome areas. To meet the increasing demand for its services, the IRC is strengthening its IT infrastructure and enterprise systems. Continuous improvement and integration of finance, supply chain, grant management processes, and other functions are vital to support this growth (Baltazar et al., 2019).

IRC Ethiopia's annual report indicated that the organizational performance of IRC is highly challenged by supply chain integration; Ethiopia's country office is working in integrating supply chain function with other program departments (IRC Ethiopia Annual Report, 2022).

The International Rescue Committee Ethiopia: Strategy Action Plan highlights the inadequate integration between supply chain functions and other program departments as a potential cause of functional activities inefficiencies for the emergency response attainment of IRC. Strong links, both electronic and otherwise, between all functions in the supply chain, are essential for the flow of information, timely and quality decision-making, and streamlined operations. Designing integrated systems is seen as a crucial factor in facilitating technology and business transformation and improving performance.

Furthermore, a comprehensive review of existing literature reveals no studies were found conducted on the role of supply chain integration in the performance of the International Rescue Committee Ethiopia. The researcher acknowledges the limited and specific research are conducted thus insufficient in the humanitarian areas.

1.3. Research Questions

This paper aimed was to answer the following basic research questions:

1. What is the level of SCM integration in IRC Ethiopia?
2. What are the relationships between supply chain integration and the organizational performance of IRC Ethiopia?
3. What are the roles of supply chain integration on the organizational performance of IRC Ethiopia?
4. How supply chain management is being practiced at IRC in terms of warehouse, fleet distribution, and procurement.

1.4. Objectives of the study

Aligned with the identified research problems, general and specific objectives are mentioned below

1.4.1General Objective

The general objective of the study is to assess the roles of supply chain integration on the organizational performance of the International Rescue Committee Ethiopia.

1.4.2. Specific Objectives

The specific objectives of this study include.

1. To determine the current level of SCM and integration practices within the International Rescue Committee Ethiopia.
2. To analyze the relationships between supply chain integration and the organizational performance with respect to Supplier integration, Information integration, Resource sharing and coordination, Internal process integration, and external integration.
3. To assess the roles of supply chain integration on the organizational performance related to Supplier integration, Information integration, Resource sharing and coordination, Internal process integration, and external integration of the International Rescue Committee in Ethiopia.
4. To assess Supply chain management practices (Procurement -Warehouse, Fleet, and Distribution.

1.5. Significance of the Study

This research furnishes valuable insights for the International Rescue Committee to understand the extent of supply chain integration and its implications for organizational performance. The findings will aid in the development of appropriate integration strategies to enhance the robustness of the supply chain system, ultimately improving performance.

The study adds to the fields of SCM and organizational performance, expanding knowledge in these areas. It is particularly valuable for humanitarian organizations operating in Ethiopia, helping them comprehend supply chains management challenges, the role of integration on performance, and enabling the formulation of effective management strategies. Additionally, the study adds to the existing literature on supply chain integration, offering empirical evidence of its impact on performance, and enhances understanding of its role in humanitarian organizations.

Furthermore, this research can be utilized as a reference for students and researchers undertaking future studies on similar or related topics. It contributes to the literature by examining the role of supply chain integration on performance, encompassing various departments and interactions, and considering both operational and organizational performance.

1.6. Scope of the Study

This study emphasizes on the roles of supply chain integration on the performance of the International Rescue Committee in Ethiopia. Data was collected from the IRC head office and field offices within Ethiopia. The study specifically investigates the integration within IRC Ethiopia and does not include other commercial supply chain actors funding company's, governmental organization, or End users.

1.7. Limitation of the Study

It is imperative to consider that the findings and their application may not directly apply to other IRC country offices. Therefore, the study's results should be used for comparative purposes rather than direct utilization in different geographical locations. The study also does not address the role of supply chain integration with customer integration and measurement integration.

1.8. Operational Definition and Definition of Key Terms

Level of information sharing: The extent to which critical and proprietary information is communicated to one‘s supply chain partner *(Li et al. 2006). (Li et al., 2013)*

Integration: Uniting, combining, or incorporating two or more functions within a company or two or more processes between two or more companies into a compatible or unified process in an operational (El Abboubi and Economics, 2021)

Supply chain integration: the extent to which all activities within an organization, and the activities of its suppliers, customers, and other supply chain members, are integrated (Yu et al., 2015).

Internal integration: represents the integration of all internal functions from material management to sale and distribution (Baharanchi, 2011).

Information integration: also called referential integration is the merging of information from heterogeneous sources with differing conceptual, contextual, and typographical representations (Chen and Management, 2020).

Supplier integration: integration back down to the suppliers represents a change in attitudes from conflict to cooperation starting with product development, supply of high-quality products, process and specification change information, technology exchange, and design support (Baharanchi, 2011).

1.9. Organization of the Study

The organization of this study encompasses five chapters. Chapter one comprises the study's introduction, providing an overview of the background, problem statement, research objectives, research questions, significance, scope, and structure of the study. The second chapter entails a comprehensive literature review, which encompasses the clarification of key concepts, theoretical foundations, empirical studies, and the development of a conceptual framework. The third chapter focuses on the study's methodology, encompassing the study design, sampling procedures, data collection instruments, and other pertinent aspects. The fourth and fifth chapter presents the research findings and facilitates discussions and recommendations.

CHAPTER TWO

RELATED LITERATURE REVIEW

Introduction

The introduction of this chapter provides an overview of the research topic, which is the SCM practice of the International Rescue Committee (IRC) Ethiopia's humanitarian response performance. The chapter begins by presenting a comprehensive literature review of previous works by numerous research in the sector of SCM, specifically focusing on the dimensions of supply chain integration, internal integration, and organizational performance. The review encompasses both theoretical and empirical studies related to the subject matter.

Based on the insights gained from the literature review, the thesis aims to formulate and evaluate research questions that will contribute to the understanding of the roles played by supply chain integration in promoting the humanitarian response performance of the IRC Ethiopia. These research questions serve as a guide for the study and help identify the measurement variables that will be used to address them effectively. Overall, the chapter sets the stage for the subsequent sections of the thesis, establishing the theoretical foundation and research objectives that will be explored in detail. It highlights the significance of studying the SCM in the humanitarian context and emphasizes the importance of evaluating the influence of supply chain integration on the IRC Ethiopia's performance in responding to humanitarian crises.

2.1. Theoretical Literature

SCI has been found to enhance the effectiveness of humanitarian aid organizations. In order to attain supply chain integration and ensure seamless coordination of internal activities and processes, it is recommended that humanitarian organizations strengthen their utilization of information technology and computerized systems. For successful supply chain integration, data should be easily accessible, up-to-date, accurate, and presented in a manner that can be

understood by all actors in the supply chain. Sharing information among stakeholders in the supply chain reduces uncertainty and minimizes the need for buffer stock, leading to improved integration and dynamic decision-making (Nyile et al., 2021).

In the context of humanitarian organizations in Kenya, the impact of supply chain challenges on performance was examined. The majority of respondents strongly agreed that inadequate information negatively affects the delivery of appropriate products, uncertainty in demand hinders the delivery of the correct quantity, inadequate storage facilities impact product condition, and inaccessible locations result in delayed service delivery (Nyamu, 2012).

2.1.1 Supply Chain Management Practices

Supply chain management practices involve the interconnected network of suppliers and end users involved in the flow of products until they reach the end customer. The complexity of the supply chain can vary, ranging from a direct supply chain involving a company, supplier, and customer, to extended supply chains that encompass suppliers of the immediate supplier and customers of the immediate customer, to ultimate supply chains that encompass all organizations involved in both upstream and downstream flows (Petersen et al., 2005).

Globalization and the rapid advancement of IT have transformed inter-organizational relationships, with firms increasingly relying on global networks of partners to provide products efficiently and cost-effectively. However, long and intricate supply chains often face challenges in responding promptly to changes, making them vulnerable to disruptions. Effective supply chain integration is crucial in managing these challenges, involving cross-firm business processes, information sharing, operational coordination, and partnerships (Suryanto and Mukhsin, 2020).

Emergency logistics is a complex and dynamic process that involves various interdependent tasks with diverse objectives and constraints. In the aftermath of a disaster, the primary focus is on collecting and distributing emergency resources to affected areas. However, several interdependent tasks emerge, such as identifying resource holders, locating available emergency resources, arranging transportation to affected areas, and coordinating the availability of transport vehicles (Jiang et al., 2019).

The study primarily focuses on four logistics practices: procurement management, fleet distribution, warehouse management, and inventory management

2.1.2. Procurement Management Practice

Procurement encompasses the whole process of acquiring property and/or services. According to Waters (2004), it begins when an agency has identified a need and decided on its procurement requirement. Procurement continues through the processes of risk assessment, seeking and evaluating alternative solutions, contract award, delivery of and payment for the property and/or services, and, where relevant, the ongoing management of a contract and consideration of options related to the contract. Procurement also extends to the ultimate disposal of property at the end of its useful life (Waters, 2004)

The purchasing process is used to identify user requirements, evaluate the user needs effectively and efficiently, identify suppliers who can meet that need, develop agreements with those suppliers, develop the ordering mechanism, ensure payment occurs promptly, ascertain that the need was effectively met, and drive continuous improvement. In every step of this process, managers are challenged to ensure that internal users are satisfied both with the process and the outcome, Baily, et al., (2005)

In times of emergencies, man-made or natural, when communities are vulnerable, prompt responses and actions with fast results are needed. The effectiveness of the response to emergencies in meeting the immediate needs of the affected communities, embarking on the path to recovery and reconstruction, and building trust in governing bodies depends directly on the effectiveness of the procurement processes implemented to respond to the urgent needs (Ali et al., 2015).

To understand these activities of the sourcing process it is better to offer the reader this clear explanation from Van Weele (2006):

Determining the purchasing specifications (in terms of required quality and quantities) of the goods and services that need to be bought. Selecting the best possible supplier and developing procedures and routines, Preparing, and conducting negotiations with the supplier to establish an Agreement, and writing up the legal contract., Placing the order with the selected supplier and

developing efficient purchase order routines, Monitoring and control of the order secure supply, Follow-up, and evaluation.

2.1.3. Warehouse Management Practice

Warehousing involves the systematic and orderly storage of goods on a large scale, ensuring their convenient availability when needed. It plays a crucial role in modern supply chains and significantly impacts business success (Frazelle, 2002a; cited in Haung Min, 2010).

Delivering products to the correct customer, at the correct p place, and on time requires correct labeling, loading onto the appropriate vehicle, and ensuring cleanliness and undamaged condition. A cost-efficient operation that delivers value for money is essential for achieving the right price. Therefore, warehouses play a critical role in delivering perfect orders (Bahr et al., 2022).

Logistics of warehousing encompass various activities such as receiving, putting away, storage, order picking, and shipping (Bartholdi and Hochman, 2016).Effective design and management of warehouse systems are crucial for maintaining required customer service levels, ensuring stock integrity, and avoiding unnecessary costs (Haung Min, 2010).

As supply chains become more complex due to globalization, the role of warehouses has evolved, leading to the development of warehouse management systems (WMS). WMS is a database-driven IT tool that enhances warehouse efficiency by coordinating activities and maintaining accurate inventory records (Shiau and Lee, 2009; cited in Min, 2010).

The location of a warehouse should be easily accessible in the right area, with an appropriate land size. Special storage areas for disaster response should be close to the affected areas and equipped to handle climatic conditions. Each material should have a separate stock card and be assigned a stock code. The warehouse management center should have loading and unloading systems, infrastructure such as barcode, FRID, and WMS, camera systems, lighting, and a warehouse management information board. Defects should also be identified and addressed (Adiguzel and Logistics, 2019).

2.1.4. Fleet and Distribution Management Practice

Fleet and distribution management are vital components of relief organizations' operations, and improving transportation and logistics systems can greatly enhance humanitarian relief services (Dolinskaya et al., 2011). Following a disaster, organizations often face challenges in transporting various commodities and personnel efficiently within the affected area. Quick and efficient transportation is crucial for maximizing the rehabilitation of the affected population and minimizing operational costs (Haghani and Afshar, 2009).

Effective fleet and distribution management contribute to service quality in logistics. Well-handled transportation systems ensure goods are delivered accurately, satisfying customer demands. This includes specified pickup and delivery times, predictable transit times, zero loss and damage, and accurate and timely information exchange and invoicing. Distribution forms the foundation for efficiency and economy in business logistics and supports other functions in the logistics system. A well-performing transportation system not only improves service quality but also enhances company competitiveness (Fair and Williams, 1981).

Distribution activities are central to disaster response operations, ensuring the efficient delivery of relief resources to affected areas (Jiang & Yuan, 2018). The capacity, capability, speed, cost, resiliency, reliability, and robustness of transportation systems all contribute to the supply chain's ability to respond to demand and meet mission.

2.1.5. Supply Chain Integration

Supply chain integration refers to the synchronization and collaboration of routine operational and planning processes within and between organizations, biases and establishing strategic plan. It enables companies to effectively manage intra and inter-organizational processes and interactions with supply chain and business partners (Didia & Nwokah, 2015).

Integration can occur through forward mechanisms, involving suppliers and buying firms, or backward mechanisms, involving customers and buying firms (Cousins & Menguc, 2006). Key processes that can be integrated across the supply chain include customer relationship management, customer service management, demand management, order fulfillment, manufacturing flow management, procurement, and product development (Sillanpaa, 2010).

Increased supply chain integration provides rapid access to information sources, enhances sensitivity towards customer needs, and enables faster response times, resulting in a competitive advantage over competitors (Sezen, 2008). Properly integrated supply chains add value by reducing expenses and increasing competitive edge (Lee, 2000).

Although information sharing and coordination are considered essential for successful supply chains, visibility across the supply chain is still limited in practice (Kempainen & Vepsalainen, 2003). Tracking performance allows organizations to identify and address potential problems, monitor progress, and adjust goals based on forecasted realities (Min, 2015).

Integration enhances competitiveness through value creation by expanding economies of scale, reducing waste and costs, offering convenient product assortments, and providing customized products tailored to specific customer needs (Pagell, 2004). Supply chain integration involves strategic alliances, collaboration, and working as a single entity across all participating players, from suppliers to customers (Kwon & Suh, 2005).

2.1.6. Organizational Performance

Organizational performance metrics serve as benchmarks for assessing performance, both internally and externally. Internal performance metrics help eliminate non-value-adding activities, reduce order variation, improve product flows, optimize resource utilization, and minimize the bullwhip effect (Frohlich & Westbrook, 2001).

Concepts such as agility, flexibility, and responsiveness are relevant in assessing organizational performance as they emphasize customer focus and the ability to adapt to changing customer needs (Stevenson et al., 2007).

Performance measurement should emanate from performance goals and strategy and serve as a basis for improvement. It can describe process results from the past and present and be used to set performance goals. Performance measures simplify complex structures and can incorporate quantitative and qualitative information (Armistead, 1999; Blecken et al., 2009). They can be designed to evaluate the performance of an entire organization or specific departments, units, or functions (Blecken et al., 2009).

2.2. Empirical Literature Review

2.2.1. The Dimensions and Levels of SCI

The concept of supply chain integration encompasses various dimensions and levels, including internal integration, information integration, and external integration.

2.2.1.2. Internal Integration

Internal integration refers to the extent to which a manufacturer aligns its company strategies, practices, and processes to collaborate and synchronize in meeting customer requirements (Huo et al., 2014). It involves coordinating functions related to procurement, inventory management, and distribution within the company. Internal integration aims to break down functional silos and promote collaboration among different departments within an organization. It involves sharing relevant business information and providing supportive internal services to improve operational efficiency (Teixeira et al., 2012).

Internal integration focuses on integrating all internal operations, including materials management, production, sales, and distribution, to support customer needs while minimizing costs. It emphasizes the connection and coordination of functional areas (Noordin, 2014). Factors influencing internal integration include internal structures, organizational culture, appraisal systems, and communication trend across functions (Pagell, 2004).

By leveraging resources and capabilities across functions, internal integration enables collaborative product design, ensures quality of products , and reduces duplicated efforts (Flynn et al., 2010).

2.2.1.3. Information Integration

Information integration within the supply chain has two major wings: technical wing (information technology connection) and social wing (information sharing and trust). It involves the integration of information technology and information sharing to support the integration of material flow (logistics) (Devaraj et al., 2007).

Merely relying on technology without a willingness to share critical information and establish trust among supply chain partners does not lead to meaningful connectivity and logistics integration. Organizations that successfully build both the technical and social aspects of

information integration can reap the maximum benefits of logistics integration (Prajogo and Olhager, 2012).

Information technology plays a vital role in supply chain management integration by enabling the integration of activities within and outside the company. Integrated information systems facilitate information sharing, especially when suppliers are geographically dispersed (Elahi et al., 2013).

2.2.1.4. External integration

External integration involves the integration of suppliers and customers into the supply chain. Supplier integration encompasses activities such as information sharing, collaboration in planning, and joint product development, focusing on the inter-organizational boundaries (Ragatz, 2002).

External integration expands the integration domain beyond the organization to include suppliers and customers. Two primary areas emphasized in the literature are customer integration and supplier integration (Frohlich and Westbrook, 2001). Research suggests that a broader scope of integration is associated with improved performance.

Efficient external process integration enables manufacturers to streamline product delivery processes, enhance production planning, and reduce inventory obsolescence by leveraging accurate information about customer demands and preferences (Swink et al., 2007). Process integration with suppliers helps manufacturers reduce errors, improve product quality, and enhance operational performance through information sharing and joint planning (Petersen et al., 2005).

Product integration with suppliers and customers enhances a manufacturer's new product development capabilities, promoting product quality, flexibility, innovation, and competitive advantage (Koufteros, 2007; Swink and Song, 2007).

2.2.1.5. Supplier Integration

Supplier integration involves the collaborative involvement of suppliers with the buyer organization, where suppliers provide operational and strategic information and support activities such as new product development (Teixeira, 2012). This type of integration relies on establishing

long-term relationships characterized by high levels of trust, commitment, and information sharing between the buyer and supplier (Teixeira, 2012).

Not all companies have world-class supply chains unless they are among the few that are consistently recognized in the literature for having exemplary supply chains, such as Apple, Procter and Gamble, and Wal-Mart. Effective supply chain implementation has proven to be challenging for many companies. Research on supply chain implementation has shown that integration, while beneficial, is difficult to achieve. Adopting a supply chain perspective requires strategic thinking and actions from trading partners, which can be challenging even within a single organization, let alone across diverse and dispersed trading partners (Power, 2005).

A study sponsored by CAPS Research, the research arm of the Institute for Supply Management (ISM), identified competitive pressures as a significant factor affecting supply chain strategy and integration. The study focused on alignment and linkage issues within and across organizations and concluded that well-integrated supply chains are not yet prevalent in the industry.

Supplier integration is equally important for both customers and suppliers. It can be described as the extent to which a manufacturer collaborates with suppliers and customers to align inter-organizational strategies, and processes into synchronized operations.

Efficient management and integration of logistics operations are critical factors for a business's performance. Properly managing these activities leads to benefits such as streamlined supply, information, and product flow. Communication and information technology play vital roles in gaining a competitive advantage over competitors (Li et al., 2006). Advances in technology and globalization have accelerated the development of techniques and technologies in various business areas since the beginning of the 21st century.

Implementing integrated supply chain management helps identify weaknesses within existing supply chains. However, there are potential drawbacks, including increased financial and environmental costs, as well as risks related to cybersecurity and data privacy (Auramo et al., 2005).

2.2.2.1. Warehousing Management Practices

Warehousing refers to the facility where supplies are stored until they are distributed to end users or decisions are made regarding their utilization within the supply chain (Balcik and Beamon, 2008). The primary purpose of warehousing is to manage and protect humanitarian supplies in an organized manner until they can be delivered to beneficiaries. Additionally, humanitarian storage must account for reserving supplies for future or unforeseen needs (Balcik and Beamon, 2008). Some humanitarian organizations strategically pre-position supplies at distribution centers ahead of disasters, but this approach is limited by factors such as funding availability, uncertainty of disaster occurrences, and the high operational costs associated with managing distribution centers (Balcik et al., 2010).

2.2.2.2. Fleet and Distribution Practices

Distribution planning involves considering not only the means of transportation but also the actual feasibility of transporting supplies from the point of resource to the final destination, along with alternative options for prompt and safe delivery of relief assistance (Kinyua, 2013). Challenges in transporting food from ports to final delivery points can hinder humanitarian response due to delays in supply transportation.

2.2.2.3. Procurement Practice

Procurement encompasses activities like at determining procurement specifications based on functional use, selecting the best possible supplier, developing procedures and routines for efficient purchasing, negotiating with suppliers, placing orders, monitoring and controlling orders to ensure supply, and evaluating supplier performance (Van Weele, 2006).

2.2.3.1 Organizational Performance

Performance in supply chain management is closely related to efficiency and effectiveness, which are key factors for comparing characteristics such as revenue sources, goals, stakeholders, and performance measurement (Beamon and Haavisto et al., 2015). Comparative studies have been conducted on performance measurement in both humanitarian and commercial supply chains, leading to the development of frameworks for performance measurement in the relief sector.

A performance measurement system provides the necessary information for decision-making, and it is crucial to measure the right indicators to evaluate improvements in effectiveness and efficiency (Gunasekaran and Kobu, 2007). However, Schulz and Blecken (2010) note that many humanitarian organizations do not actively monitor or report performance indicators. Only a small percentage of organizations use some indicators, and even fewer consistently measure performance.

Performance measurement is a critical factor and a competitive advantage in enhancing the efficiency and effectiveness of a supply chain. Measuring an organization's performance helps determine whether it is progressing toward its goals (Birdoğan and Abuasad, 2020). Effective performance measurement also plays a vital role in increasing transparency and accountability in disaster response efforts (Birdoğan and Abuasad, 2020). By measuring performance, humanitarian organizations can identify bottlenecks in their logistics activities and implement necessary solutions for improved performance (Birdoğan and Abuasad, 2020).

Supply chain responsiveness refers to a supply chain's capability to respond to erratic quantities demanded, attain short lead times, handle diverse product ranges, innovate, provide a high service level, and manage supply fluctuations. These capabilities are crucial in dealing with the uncertainties inherent in demand and supply. While a more responsive supply chain can provide advantages, it comes at a cost.

Supply chain efficiency, on the other hand, represents the inverse relationship between the cost of manufacturing and delivering a product to the customer. Increases in cost reduce efficiency. Each strategic choice made to increase responsiveness in the supply chain incurs additional costs that can lower overall efficiency (Sunil Chopra and Peter Meindl, 2007).

2.3. Research Gaps

The existing literature on supply chain integration primarily focuses on private and public organizations, neglecting the context of humanitarian aid organizations. While businesses strive for profit maximization and integrate their functions to achieve real-time and efficient processes, humanitarian organizations also need to integrate their supply chain activities to deliver aid to beneficiaries in a timely and cost-effective manner. However, research studies on humanitarian

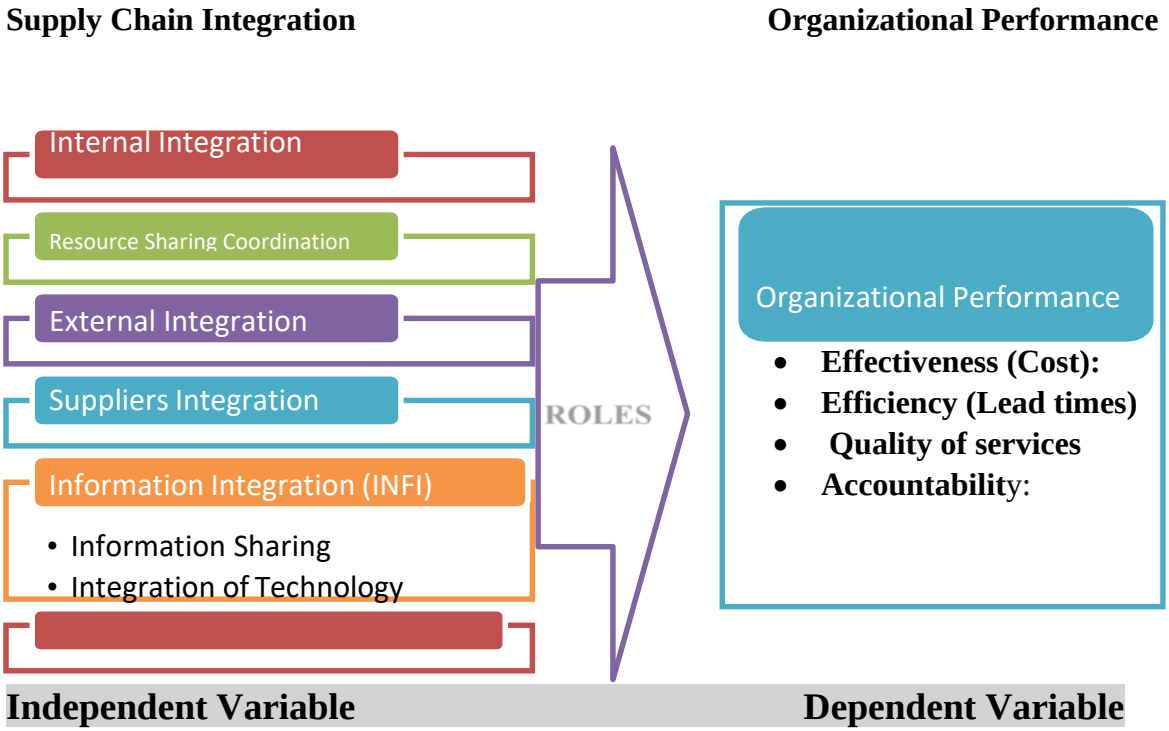
SCI have not adequately addressed the role of integration on performance and supply chain management practices.

A study by Kassahun (2018) on factors affecting the performance of the International Rescue Committee (IRC) found that the supply chain operations in IRC were moderately effective and efficient in terms of indicators such as innovation, reliability, efficiency, process quality, accountability, and integration, but not at a significant level.

2.4. Conceptual Framework

Figure 2.3 Conceptual Framework of Supply Chain Integration

According to Wilson et al, (2015), a conceptual framework may be a graphic or written product that describes the main things to be studied, concepts, and Variables and therefore show the alleged relationship between them.



Source: *Scheinbaum, A. C., 2011; Hussein et al., 2014.Adopted and Modified*

CHAPTER THREE

RESEARCH METHODOLOGY

Introduction

The research approach, design, and methods implemented in the study are provided in this chapter along with a review of the population and problems with the sampling strategy, determining the sample size, and data collection instrument. The chapter also discusses the methodology for data collecting, data instruments, validity and reliability testing, data processing methods, and the study's ethical considerations.

3.1. Description of the study area

IRC Ethiopia has its headquarters in the city of Addis Ababa and operates eight main field offices located in Shire, Dollo, Jigjiga, Hawassa, Adama, Gambella, and Assosa.
The study did not consider the shire field office considering the current network and ICT disruption. Respondents from each of these seven field offices were chosen to take part in the quantitative survey, which involved answering a questionnaire through google forms.

3.2. Research Approach

To achieve the research objectives, a quantitative survey approach was utilized. The target population consisted of employees from the Head office of the International Rescue Committee and field offices currently working in the organization. Seven target offices were selected, and a questionnaire was distributed to key informants who were deemed relevant to the research objective. These key informants included logistics officers, procurement officers, supply chain professionals, project managers, program coordinators, managers, and officers.

3.3. Research Design

Saunders et al. (2007) define research design as the preparations of conditions for the collection and analysis of data that balances relevance to the research motive with economy in procedures. To achieve the goal of the research, the researcher utilized both explanatory and descriptive designs. The explanatory research design was used to elaborate, understand, forecast, and

command the role of independent variables over the dependent variable (Organizational performance). The descriptive research design was used to collect data that explain the characteristics of the areas of interest in the research. This method was appropriate for examining the relationship and conclusions from the results. The study utilized a cross-sectional study approach, where all necessary data was collected at a single point in time.

3.4. Target Populations and Sampling Techniques

3.4.1. Target Population

Yamane (1967) defines the population as the whole set of the universe from which a sample is taken. The target population for this research study was employees working at eight branches of the International Rescue Committee Ethiopia. Currently, the total number of employees in the selected eight branches is 1382. However, not all employees were included in the study based on the study objective. Only employees who work in the supply chain line and hold positions above the officer level were included, as they were believed to be able to provide relevant information. Therefore, the target respondents for this study are 235 staffs in selected branches of the International Rescue Committee in Ethiopia.

3.4.2. Sample Size Determination

Based on the information provided in the previous section, there were 1382 employees in the International Rescue Committee in Ethiopia. However, the researcher selected 235 target respondents based on the inclusion criteria. When the target population size is identified, Yamane (1967) provides a simplified formula to calculate sample size, which is mentioned as follows:

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

Then:

$$n = \frac{235}{1+235(0.05)^2} = \underline{\mathbf{148}}$$

Where, N= population size, n= sample size, and e= the desired level of precision (5%)

The proportion of the administrative staff from the total number of employees is calculated as:

$$n1 = \frac{\text{n1}}{\text{N}} * 100$$

Where,

n1= number of samples from the Addis Ababa branch

n2= number of samples from the Adama branch

n3= number of samples from the Gambela branch

n4= number of samples from the Assosa branch

n5= number of samples from the Hawassa branch

n6 = number of samples from the Jigjiga branch

n7 = number of samples from the Melkadida branch

The sample for this study consisted of starting from officer-level employees related to the supply chain line of the international rescue committee. The researcher distributed questionnaires to target respondents, and 148 individuals were selected to represent the total population after stratification into their homogenous groups. After their stratification into their homogenous sectors categorized into seven sectors (the sectors chosen randomly from the strata in which they were categorized). Randomly questionnaires were distributed to a total of 148 respondents according to their strata.

Table 3. 1: Number of Respondents and Proportion of Samples taken From Each Branch

No	Name of the branch	Target population	The proportion of sample size $n1 = \frac{n1}{N}*100$
1	Addis Ababa	52	$n1 = \frac{52}{235}$*100=22% of 148 =33
2	Adama	24	$n2 = \frac{24}{235}$*100=10% of 148 =15
3	Gambela	33	$n3 = \frac{33}{235}$*100=14% of 148 =21
4	Assosa	22	$n4 = \frac{22}{235}$*100=19% of 148 =14
5	Hawassa	44	$n5 = \frac{44}{235}$*100=19% of 148 =28
6	Jijiga	40	$n6 = \frac{40}{235}$*100=17% of 148 =25
7	Melkadida	20	$n7 = \frac{20}{235}$*100=9% of 148 =12
Total		235	148

Source: International rescue committee human resource

3.4.3. Sampling Techniques

The fundamental idea behind stratified sampling, according to Shalabh (2013), is to split up the entire heterogeneous population into smaller groups or subpopulations, ensuring that the sampling units are homogeneous regarding the characteristic under study within the subpopulation and heterogeneous regarding the characteristic under study between/among the subpopulations. We refer to these subpopulations as strata. A sample is taken from each stratum using basic random sampling, with each subpopulation being treated as a separate population.

Once a population is divided into appropriate strata, a simple random sample can be taken within each stratum. In this study, the entire employees above officer levels related to the supply chain line at the International Rescue Committee in Ethiopia were stratified into seven strata: Addis Ababa, Adama, Gambela, Hawasa, Jigjiga, Assosa, and Melkadida. The sample size of 148 was proportionately distributed among these seven strata to ensure appropriate representation.

3.5 Sources of Data

There are two types of data, namely primary and secondary data. For this research, the researcher used both primary and secondary data.

3.5.1. Primary Data Sources

Primary data are information that has been gathered by a researcher with the intent of solving the current issue. Primary data for this study were collected and self-administered questionnaires directly from respondents. The chosen respondents were required to respond to structured questions on the questionnaires.

3.5.2. Secondary Data Sources

Secondary data were gathered from a variety of sources, including proclamations, regulations, instructions, plan reports, articles, yearly reports pertaining to supply chain activities, literature on organizational effectiveness written by various scholars, and literature from the International Rescue Committee. The secondary data sought to explain, provide feedback on, examine, and draw conclusions about the events explained in primary sources.

3.6. Method of Data Collection Technique

Primary data were collected from supply chain staffs and program departments of all field offices through questionnaires respondents were asked to rate their opinions on a scale of 1 to 5, where. The primary data was gathered using self-administered questionnaires. To collect primary data, the researcher used online platforms such as Google Forms for questionnaires and Google Meet for interviews, which were conducted both in-person and virtually for selected branches of the International Rescue Committee in Ethiopia. The questionnaires were developed in softcopy and shared via email and telegram with owners, general managers, and department managers, using the free Google Forms online platform. These methods of communication were considered suitable due to the challenges of accessing respondents in the field office.

3.7. Data Collection Procedure

Several tools were employed to accomplish the study's goals and collect the needed information from the aforementioned sources. The questionnaires were created using, with slight modifications, analyzed scientific literature as well as previously completed research on related topics. Items on the survey were scored on a 5-point Likert-type scale, with 1 denoting "not occurring" and 5 denoting "occurring to a very large extent".

3.8. Method of Data Analysis

According to each study variable, the obtained data were coded and entered into the Statistical Package for Social Sciences (SPSS) programme for analysis. To comprehend the events based on the responses to each item, as well as the respondents' demographic data, descriptive analysis was used. This was accomplished by contrasting each variable's mean and standard deviation

values. Each variable was described and compared using the mean. The strength and direction of the association between the independent and dependent variables were determined using Pearson correlation. Tables and figures were used to present the data in order to quickly paint a clear picture of the research findings.

The standardized variables in the regression, including the dependent and all of the independent variables, also yielded regression coefficients using the SPSS data analysis. To determine which variable has a greater impact on the result, one can compare the magnitude of the coefficients. The standardized regression coefficients are represented by the beta () coefficients. Their respective absolute magnitudes for a particular step demonstrate how important each one is in forecasting perceived worth.

The Multiple regression models were as follows:

$$OP = \beta 0 + \beta 1X1 + \beta 2x2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \Sigma 0 + e$$

$$OP = \beta 0 + \beta 1(Ii) + \beta 2(RsC) + \beta 3(IpI) + \beta 4(Si) + \beta 5X5 + e$$

$$OP = -.135 + 0.554(Ii) + 0.177(RsC) + 0.155(IpI) + 0.290(Si) - 110(X5) + e$$

Where;

OP= the dependent variable (Organizational performance)

Ii= the first independent variable (Information integration)

RsC= the second independent variable (Resource sharing and coordination)

IpI= the third independent variable (Internal process integration)

Si= the fourth independent variable (Supplier integration)

Ei=the fifth independent variable (External integration)

β0 =intercept of the equation e = error term

The significance level of the regression was examined by conducting the F- test while the multiple regression coefficients, R^2, were used to determine how much of the variation in Y is due to changes in the dependent variable Xi.

3.9. Validity and Reliability of Instruments

3.9.1. Validity Test

Validity is an important factor which refers to extent of to which a test or study measures the construct or concept what it is intended to measure, and it focuses on the accuracy of the measurement. All of the measures that were applied to create the instruments in this study had acceptable levels of construct and content validity in prior studies, which the researcher employed with few minor modifications. A counsellor also used suitable detection to confirm the reliability of the instruments.

The clarity of the instructions, the clarity of the questions, the structure of the questionnaire, and other feedback were used as a few of the measures to verify that the conclusions were free from significant errors resulting from the design of the questionnaire. Since the questionnaire was created following a careful analysis of the academic literature on organizational performance, it is believed that the construct validity is upheld.

3.9.2. Reliability Test

Reliability refers to the consistency and dependability of a measurement or test it is the extent to which a test or measurement produces consistent and stable results over time and across different context (Easterby-Smith et al., 2009). In order to assess the internal consistency of questionnaires, reliability analysis was utilized.

There are various reliability test methodologies. Cronbach's alpha was utilized in this investigation. The usual range for the Cronbach alpha reliability coefficient is 0 to 1. The following guideline for Cronbach's alpha is provided by Marczyk, G. R., DeMatteo, D., and Festinger (2010) : >.9 excellent, >.8 good, >.7 acceptable, >.6 poor, >.5 poor, and.5 unsatisfactory. The table below shows the reliability findings for the measurements of the organizational effectiveness variables.

Table 3.2: Reliability Statistics

Variables	Cronbach's Alpha	No of Items
Information integration	.735	6
Resource sharing and coordination	.849	6
Internal process integration	.735	4
Supplier integration	.705	8
External integration	.709	4
Organizational performance	.731	6

Source: Field survey, 2023

As illustrated in the table above, all organizational performance factors (Supplier integration, Information integration, Resource sharing and coordination, Internal process integration, and external integration) and organizational performance were classified under the level of good which is greater than 0.70. This indicated that Cronbach‘s alpha coefficient of all variables fell within the stated range and concluded that there is internal consistency.

3.10. Ethical Consideration

Before collecting data for the study, the first correspondence memo to conduct the research was received from School of Commerce. Respondents were given a thorough explanation of the study's goals and methodology before being invited to participate or not. Every questionnaire has a remark at the top indicating that the information collected was totally confidential and was solely used for academic purposes. The entire study method was within control in accordance with suitable professional ethics. To avoid distorted results or unreliable data provided by respondents and to provide participant’s confidence when filling out the questionnaire, a statement further reiterated the rule against providing any identity details or personal references in the questionnaire. The researcher investigated the study in accordance with the response after gathering the data. Without intentionally distorting what has been done or deceiving others about its nature, the findings were communicated completely and honestly.

CHAPTER FOUR

DATA ANALYSIS, RESULTS, AND DISCUSSION

Introduction

This chapter discusses and analyzes data gathered from employees of the International Rescue Committee in Ethiopia. Descriptive statistics such as mean and standard deviation were calculated to present general information about the respondents. Correlation and regression analysis were conducted on a scale-typed questionnaire to assess the relationship between supply chain integration dimensions, the role of SCI, and SCM practices.

4.1. Response Rate

The research distributed 148 questionnaires to employees above officer levels related to supply chain lines in the International Rescue Committee in Ethiopia, and 125 of them were returned, representing a response rate of 84.46%. These responses were considered valid and used for analysis. The study's key findings are outlined, drawn to a conclusion, and given recommendations in Chapter Five.

Table 4.1: Response Rate of Respondents

Description	Respondents
Questionnaire distributed	148
Questionnaire returned	125
Response rate (%)	84.46

Source: Field survey, 2023

4.2. Demographic Characteristics

The data gathered and the details of the information gained from the questionnaire are examined and described using descriptive analysis. In order to be clearer, it was utilized to describe the demographic characteristics. This analysis is crucial in order to draw broad conclusions regarding the information acquired to answer general or demographic inquiries. Age, gender,

education level, and work experience were the demographic characteristics of the respondents included in the survey.

Table 4.2 Demographic statistics of the respondents

Demographic characteristics	Description	Frequency	Percent
Gender	Male	57	45.6
	Female	68	54.4
	Total	125	100.0
Age of the respondent	20-30	15	12
	31-40	64	51.2
	41-50	34	27.2
	50 and above	12	9.6
	Total	125	100.0
Educational Qualification	Diploma	2	1.6
	Degree	101	80.8
	Master and above	22	17.6
	Total	125	100.0
Respondents position	Officer	81	64.8
	Senior officer	30	24
	Manager	8	6.4
	Coordinator	6	4.8
	Total	125	100.0
Service year	Below 2 year	20	16
	2-5 years	32	25.6
	6-10 years	50	40
	>10 years	23	18.4
	Total	125	100.0

Source: Field Survey, 2023

According to the data presented in Table 4.2, out of the 125 participants in the study, 68 (54.4%) were female, and 57 (45.6%) were male. This suggests that the research area had a higher proportion of female respondents than male respondents.

Distribution by age of the total respondents showed that the majority, 64 (51.2%), were between the ages of 31-40, followed by 34 (27.2%) between the ages of 41-50. The remaining respondents were either between the ages of 21-30 or 50 and above. This suggests that the employees were energetic and had stayed long enough in their respective organizations to gain experience and proficiency in their work, indicating their dedication and commitment to their profession.

The respondents' academic credentials revealed that the most of them were, 101 (80.8%), had a bachelor's degree, while 22 (17.6%) had a master's degree, and only 2 (1.6%) are with diploma. The study's findings allow the researcher to draw the conclusion that the respondents' levels of education were adequate for them to understand and address the issues raised. Due to their qualifications and strong educational backgrounds, most of the respondents were able to comprehend the questions posed by the survey and provide an appropriate response.

The job category of the respondents were officer (81, 64.8%), senior officer (30, 24%), manager (8, 6.4%), and coordinator (6, 4.8%). This indicates that the respondents were supply chain experts who were well equipped with the concepts and experience in SCMI and organizational performance.

The service years of the respondents in their respective organizations showed that the majority, 50 (55.2%), had a service for a period of 6-10 years, followed by 32 (25.6%) who had served for 2-5 years, and 23 (18.4%) who had a service for more than 10 years. The remaining 20 (16%) had as service for less than 2 years. This implies that many employees had adequate exposure, indicating that they had good knowledge and experience about the concept of organizational performance. Therefore, the information obtained from them was reliable, and they were able to provide accurate answers to the questionnaires.

4.3. The Supply Chain Integration Practice of IRC

The descriptive statistics of the study variables were summarized in the table below. The average score from the 5-point Likert scale with 5 referring to strongly agree and 1 referring to strongly disagrees. Where the mean for the variable is based on the criteria designed by Pimentel (2010); Agreement level 1.00-1.80 means very weak, Agreement level 1.81-2.60 means weak, Agreement level 2.61-3.40 means moderate, and Agreement level 3.41-4.20 means high and agreement level 4.21-5.00 means very high.

4.3.1. Information Sharing Practice

One of the five pillars that make up a strong supply chain relationship is the sharing of information. Supply chain partners who routinely exchange information can function as a single entity, according to Stein and Sweat as described in (Karim and Rafiee, 2014). Together, they can better grasp the demands of the final consumer and, as a result, react to market changes more quickly (Karim and Rafiee, 2014).

Table 4.3: Level of Information Sharing

Information Sharing (N=125)	Mean	Std. Deviation
The organization provides sharing of information with implementing partners regarding the preparedness of supply chain strategy and operational processes.	3.50	1.54
Sharing information on disaster readiness stages with implementing partners	3.65	1.68
The organization shares information with implementing partners when conducting assessments.	3.74	1.59
Forecasting and Supply planning information are shared with implementing partners	3.53	1.79
There is open and transparent information on tracking and tracing of humanitarian aid shipments' inventory. Open and transparent flow of information with implementing partners	3.77	1.67
Regarding the monitoring and evaluation of humanitarian initiatives, the organization facilitates an open and transparent flow of information between other humanitarian organizations and implementation partners.	3.90	1.59
Aggregate mean	3.68	

Source: Field survey, 2023

To assess the impact of the Level of Information Sharing on organizational performance of the International Rescue Committee's performance in Ethiopia, the study utilized a set of summarized questions to gather the respondents' views. The results presented in the table show that the statement “Regarding the monitoring and evaluation of humanitarian initiatives, the organization facilitates an open and transparent flow of information between other humanitarian organizations and implementation partners." received the higher mean score of (M= 3.90, and SD= 1.59). This was followed by “There is open and transparent information on tracking and tracing of humanitarian aid shipments' inventory. Open and transparent flow of information with implementing partners " with a mean score of (M= 3.77, and SD= 1.67). The respondents also agreed with the statement "my organization shares information with implementing partners in undertaking assessment" with a mean score of (M= 3.74, SD=1.59). However, the statement "the organization shares information with implementing partners on disaster preparedness stages" received a lower mean score of (M= 3.65, SD= 1.68), followed by " The organization provides sharing of information with implementing partners regarding the preparedness of supply chain strategy and operational processes." with a mean score of (M= 3.53, and SD= 1.59), and " Sharing information on disaster readiness stages with implementing partners " with a mean score of (M= 3.50, and SD=. 1.54). Overall, the findings suggest that most of the respondents perceive the International Rescue Committee to have a relatively high level of information sharing with implementing partners, particularly in monitoring and evaluating humanitarian projects. However, there is a need for improvement in information sharing on disaster preparedness stages, forecasting and demand planning, and supply chain strategy and operational processes preparedness.

4.3.2 Resource Sharing and Coordination

The second goal of the study was to examine how the performance of the international rescue committee was impacted by resource sharing and coordination. Respondents were questioned and asked to rate their perceptions in order to accomplish the stated purpose. Based on Table 4.8 below, the further descriptive analyses on the chosen questions were carried out.

Table 4.4: Resource Sharing and Coordination Practice

Resource Sharing and Coordination Practice	Mean	Std. Deviation
To enhance our capacity in terms of resource mobilization. We engage in Supply Chain Integration with other departments.	3.50	1.59
To increase our ability to conduct consolidated procurement, we collaborate with other companies in the sector through supply chain integration.	3.43	1.71
To increase our capability for executing transportation plans, we collaborate with other operators in the industry through supply chain integration.	3.78	1.54
To improve our ability to manage stock assets, we participate in supply chain integration with other functions.	3.84	1.45
Increase our ability to handle extended points of distribution; we collaborate with other operators on supply chain integration.	3.66	1.75
Increase our capacity for facility sharing; we participate in supply chain integration with other functions.	3.62	1.67
Aggregate Mean	3.63	

Source: Field survey, 2023

The purpose of the study was to assess the extent of resource sharing and coordination between the International Rescue Committee Ethiopia. The respondents were asked to indicate the extent of resource sharing and coordination on the performance of the International Rescue Committee in Ethiopia. The results presented in Table 4.6 show that most respondents agreed with the statement that "humanitarian organizations engage in Supply Chain Integration with other operators in the sector to enhance our capacity in terms of undertaking stock asset management" with mean score highest (M=3.84, and SD=1.45). This was followed by " To increase our capability for executing transportation plans, we collaborate with other operators in the industry through supply chain integration." with a mean score of (M=3.78, and SD=1.54). The respondents also agreed with the statement "Increase our ability to handle extended points of distribution, we collaborate with other operators on supply chain integration." with a mean score

of (M=3.66, SD=1.75). Additionally, the respondents agreed with the statement " Increase our capacity for facility sharing, we participate in supply chain integration with other functions " with a mean score of (M=3.62, and SD=1.67). Moreover, the respondents showed their agreement with the statement "as a humanitarian organization engaged in Supply Chain Integration with other operators in the sector to enhance our capacity in terms of resource mobilizations" with a mean score of (M=3.50, and SD=1.59). Finally, the respondents agreed with the statement “To increase our ability to conduct consolidated procurement, we collaborate with other companies in the sector through supply chain integration." with a mean score of (M=3.43, and SD=1.71). Overall, the findings suggest that the International Rescue Committee in Ethiopia engages in resource sharing and coordination with other organizations in areas such as stock asset management, transportation executions, extended point of delivery, facility sharing, resource mobilization, and consolidated procurement.

4.3.3 Internal Process Integrations Practice

To gauge respondents' perceptions, questions were asked. On the basis of Table 4.8 below, the further descriptive analyses on the chosen questions were carried out.

Table 4.5: Internal process integrations Practice

Internal Process Integrations Practice	Mean	Std. Deviation
In my organization, every supply chain function collaboratively undertakes activities with other functions of the organization, including developing periodical forecasting and demand management processes.	3.61	1.75
In my organization, every supply chain function collaboratively undertakes activities with other functions of the organization, including developing short-, medium-, and long-term plans.	3.45	1.76
In my organization, we use cross-functional teams in searching for problem-solving solutions and sharing knowledge in our company	3.79	1.69
In my organization, we can share and connect real-time information among all related internal functions	3.65	1.75
Aggregate mean	3.62	

Source: Field survey, 2023

Table 4.6 provides insights into the impact of internal process integration on the organizational performance of the International Rescue Committee Ethiopia. The results indicate a strong agreement among respondents regarding the importance of internal process integration for the organization's performance. Specifically, the statement “In my organization, we use cross-functional teams in searching problem-solving solutions and sharing knowledge in our company" received the highest mean score of (M=3.79, and SD=1.69), followed by the statement “In my organization, we can share and connect real-time information among all related internal functions" with a mean score of (M=3.65, and SD=1.75). Respondents also agreed with the statement “In my organization every supply chain jointly undertakes activities among other functions of the organization in terms of developing periodical forecasting and demand management process" with a mean score of (M=3.61, and SD=1.75), indicating a strong tendency towards agreement on the importance of joint activities across functions. The results also suggest that in my organization every supply chain function jointly undertakes activities among other functions of the organization in terms of developing short-, medium- and long-term plans, as the statement received a mean score of (M=3.45, and SD=1.76). Overall, the findings highlight the importance of internal process integration in the organizational performance of the International Rescue Committee Ethiopia, with a need for further improvement in real-time information sharing and connectivity across functions.

This finding is in line with the theory of integration, which suggests that integrating functional departments is necessary to improve the operational performance of an organization. Proper functioning of internal activities can significantly contribute to enhancing performance (Pagell, 2004; Chen, 2007; Kocoglu, 2011; Basnet and Wisner, 2012).

4.3.4 Supplier Integration Practice

To evaluate the effect of supplier integration on the organizational performance of the International Rescue Committee, the study included a fourth dimension of integration and asked respondents to rate their responses. Following descriptive analyses of the chosen questions were carried out using Table 4.6.

Table 4.6: Supplier integration

Supplier integration	Mean	StD.

We entered into long-term contract arrangements with suppliers	3.50	1.69
We prioritize quality as our primary criterion when selecting suppliers	3.64	1.60
We frequently collaborate with our suppliers to solve problems	3.60	1.62
We have assisted our suppliers in enhancing their product quality	3.79	1.66
We involve our key suppliers in our planning and goal-setting activities.	3.44	1.72
We actively engage our key suppliers in new product development processes	3.55	1.78
Our suppliers are critical to the success of our organization	3.78	1.75
There is trust between our firm and suppliers	3.56	1.56
Aggregate Mean	3.61	

Source: Field survey, 2023

As shown in Table 4.6 above, the respondents were asked to rate their level of agreement with various statements related to supplier involvement in new product development, quality improvement, planning and goal setting, trust, and joint problem-solving. Accordingly, the majority of the respondents agreed with the statement we have helped our suppliers to improve their product quality with a mean score of (M=3.79, and SD= 1.66) followed by our suppliers are critical to the success of our organization, and we consider quality as our number one criterion in selecting suppliers with a mean score of (M= 3.78, and SD= 1.75) and (M= 3.64, and SD= 1.60) respectively. Additionally, the respondents concurred with the assertion that our company and suppliers have trust and that we frequently work together to address problems. with a mean score of (M= 3.60, and SD= 1.62) and (M= 3.56, and SD= 1.56) respectively. Moreover, the respondents demonstrated a similar level of agreement with the statement "we actively involve our key suppliers in new product development processes had mean scores of 3.55 and standard deviations of 1.78. In general, the findings suggest that the International Rescue Committee has a positive relationship with its suppliers and engages with them to improve product quality and jointly solve problems, which could contribute to better humanitarian performance.

4.3.5 External Integration Practice

Analyzing the role of external integration on the organizational performance of the international rescue committee was the fifth objective of the study. Respondents were questioned and asked to rate their perceptions in order to accomplish the stated purpose. Based on Table 4.7 below, the further descriptive analyses of the chosen questions were carried out.

Table 4.7: External integration

External integration	Mean	Std. Deviation
Supply chain integration and information sharing facilitate easy decision-making regarding sourcing and tendering.	3.51	1.65
External supply chain integration can expedite the flow of physical goods and funds	3.57	1.67
Supply chain integration, information sharing, and coordination ensure that distribution and delivery are made at the right time and place.	3.75	1.70
We integrate our objectives, planning, and resources with external organizations.	3.58	1.67
Aggregate Mean	3.60	

Source: Field survey, 2023

The table provides information on the level of external integration in an organization that is being studied. The mean values for each variable range from 3.51 to 3.75, indicating that respondents perceive their organization to have moderate levels of external integration. However, the standard deviations of 1.65 to 1.70 suggest that there is some variability in the responses given by the respondents. Based on the table, it appears that the organization has some level of external integration, but there is still room for improvement in terms of integrating objectives, planning, and resources with external organizations.

4.4. Organizational Performance

The study intended to determine the degree to which supply chain integration elements influence the organizational performance of the international rescue committee in Ethiopia in this phase of data analysis. The performance of the organization was assessed using descriptive statistics. Utilizing means and standard deviations, those metrics were used to gauge organizational success.

Table 4.8: Descriptive Statics of Organizational Performance

Organizational Performance	Mean	StD.
Better decision-making is made possible by the integration of supply chain management, real-time visibility, and increased information flow. This	3.77	1.56

includes better judgments about sourcing, tendering, stock monitoring, and transportation management.		
An integrated supply chain management function can reduce the lead time within the organization as information moves more quickly	3.71	1.69
Supply chain management integration has helped deliver emergency food supplies to beneficiaries consistently and with improved quality of service.	3.74	1.70
Integration of supply chain management has improved supply chain process transparency by making the way operations are carried out transparent to others. Better accountability to funders and beneficiaries is made possible as a result.	3.60	1.76
Integration has led to increased delivery performance and response rate to disasters, enabling the organization to achieve timeliness in providing humanitarian aid.	3.83	1.50
Integration of supply chain management functions can enhance the sustainability of projects by creating systems that would not be possible otherwise.	3.81	1.53
Valid N (listwise)	3.73	

Source: Field survey, 2023

The table presented above shows the descriptive statistics for six different aspects of organizational performance related to supply chain management (SCM) integration. The mean score for "Increased delivery performance and response rate to the disaster has been achieved due to integration: Enabled the organization achieves timeliness in humanitarian aid" is 3.83, with a standard deviation of 1.50. The mean score for "With an integrated SCM functions sustainability of projects enhanced through enhanced creating systems which otherwise not possible" is 3.81, with a standard deviation of 1.53. The mean score for "There is better decision-making ability due to SCM integration and real-time visibility and improved information flow: better sourcing, tendering, stock monitoring, and transportation management decisions" are 3.77, with a standard deviation of 1.56. The mean score for “SCM integration has assisted in delivering emergency food supplies to beneficiaries with consistence quality, improved services offered to the beneficiary" is 3.74, with a standard deviation of 1.70. The mean score for “With an integrated SCM function, there is reduced lead time in the organization as information moves

faster" is 3.71, with a standard deviation of 1.69. Lastly, the mean score for "Due to SCM integration there is improved transparency of supply chain processes: the way activities are conducted is visible for others enabling better accountability towards beneficiaries and donors" is 3.60, with a standard deviation of 1.76.

The results suggest that SCM integration has a positive impact on various aspects of organizational performance, including improved transparency, delivery performance, and sustainability. Overall, the findings demonstrate that respondents perceive SCM integration as an effective approach for enhancing organizational performance in the context of humanitarian supply chains.

4.5. Level/Extent of SCM Integration: Results of Descriptive Analysis

The goal of the study was to evaluate the degree of internal and external supply chain integration among international rescue committee in Ethiopia. The five integration dimensions were used as independent variables to calculate the degree of integration. On a five-point Likert-type scale, participants were asked to rate the degree of supply chain integration in their organizations, where 5 indicated "to a very large extent," 4 indicated "to a large extent," 3 indicated "to a moderate extent," 2 indicated "to a small extent," and 1 indicated "did not occur."

Table 4.9: The level or extent of HSC Integration

Descriptive Statistics – Summary of Mean and Standard Deviations (N=125)	
Variables	Mean
Information integration	3.68
Resource sharing and coordination	3.63
Internal process integration	3.62
Supplier integration	3.61
External integration	3.60

Source: Field survey, 2023

The survey's findings indicated that the means of all the independent variables—information integration, resource sharing and coordination, internal process integration, supplier integration, and external integration—are at a high level, ranging from 3.68 to 3.63 to 3.62 to 3.61 to 3.60, respectively. The majority of respondents described the degree of integration in terms of sharing

resources, internal process coordination, and information, and they demonstrated that there is a significant correlation between the variables and supply chain integration.

4.6. Supply Chain Integration and Organizational Performance

The second objective of the study was to examine the relationship between supply chain integration and organizational performance. To develop a suitable model for evaluating this relationship in the International Rescue Committee in Ethiopia, the study conducted an inferential analysis using Pearson Correlation Coefficient and Linear Regression analysis. The data was then fitted into the regression model to determine its validity. The inferential analysis aimed to conclude the data regarding the relationship between the independent and dependent variables following are some linear regression assumptions and data analyses:

4.6.1. Correlation Analysis of Variables

The second objective of this study was to explore the relationship between supply chain integration and the organizational performance of the International Rescue Committee in Ethiopia. To achieve this, a correlation test was conducted to determine the strength of the association or relationship between the dependent and independent variables. Pearson's product-moment correlation coefficient (r) was calculated, and Pearson's correlation was used to investigate the relationship between the dependent and independent variables.

To determine the relationship between the five selected organizational performance factors (Supplier integration, Information integration, Resource sharing and coordination, Internal process integration, and external integration) and organizational performance, the Pearson product-moment correlation coefficient (r) was calculated using a scale ranging from -1.0 to 1.0. The coefficient (r) indicates the magnitude and direction of the relationship between variables, with a positive correlation indicating that as one variable increases, the other increases, and a negative correlation indicating that as one variable increases, the other decreases. Correlations are a basic and useful measure of association between two or more variables (Marczyk, G. R., DeMatteo, D., & Festinger, 2010).

According to Marczyk, G. R., DeMatteo, D., & Festinger (2005), correlations of .01 to .30 are considered weak, correlations of .30 to .70 are considered moderate, correlations of .70 to .90 are considered strong, and correlations of .90 to 1.00 are considered very strong. The Pearson

correlation coefficients for the relationship between the five organizational performance factors and organizational performance are presented in Table 4.10 below.

Table 4.10: Pearson Correlation coefficients between dependent and independent variables

Correlations							
		Information integration	Resource sharing and coordination	Internal process integration	Supplier integration	External integration	Organizational performance
Information integration	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	125					
Resource sharing and coordination	Pearson Correlation	.234**	1				
	Sig. (2-tailed)	.009					
	N	125	125				
Internal process integration	Pearson Correlation	.171	.020	1			
	Sig. (2-tailed)	.057	.824				
	N	125	125	125			
Supplier integration	Pearson Correlation	.203*	.225*	.325**	1		
	Sig. (2-tailed)	.023	.012	.000			
	N	125	125	125	125		
External integration	Pearson Correlation	.419**	.369**	.020	.086	1	
	Sig. (2-tailed)	.000	.000	.828	.340		
	N	125	125	125	125	125	
Organizational performance	Pearson Correlation	.635**	.335**	.345**	.484**	.216*	1
	Sig. (2-tailed)	.000	.000	.000	.000	.016	
	N	125	125	125	125	125	125
**. Correlation is significant at the 0.01 level (2-tailed).							
*. Correlation is significant at the 0.05 level (2-tailed).							

Source: Field survey, 2023

The table displays the results of a correlation analysis, indicating the relationship between information integration, resources sharing, internal process integration, and external integration and organizational performance of the International Rescue Committee Ethiopia. The findings reveal a strong positive correlation between information integration and organizational performance with a correlation coefficient of 0635, and a medium positive correlation between supplier integration and organizational performance, with a correlation coefficient of 0.484 and a significance level of 0.000. Similarly, internal process and Resource sharing and coordination integration both show a medium positive correlation with organizational performance, with correlation coefficients of 0.345 and 0.335, respectively and significance levels of 0.000. These results indicate that all five independent variables have a statistically significant positive relationship with organizational performance at the 5% significance level. On the other hand, a relatively weak relationship between external integration and organizational performance with a correlation coefficient of 0.216.

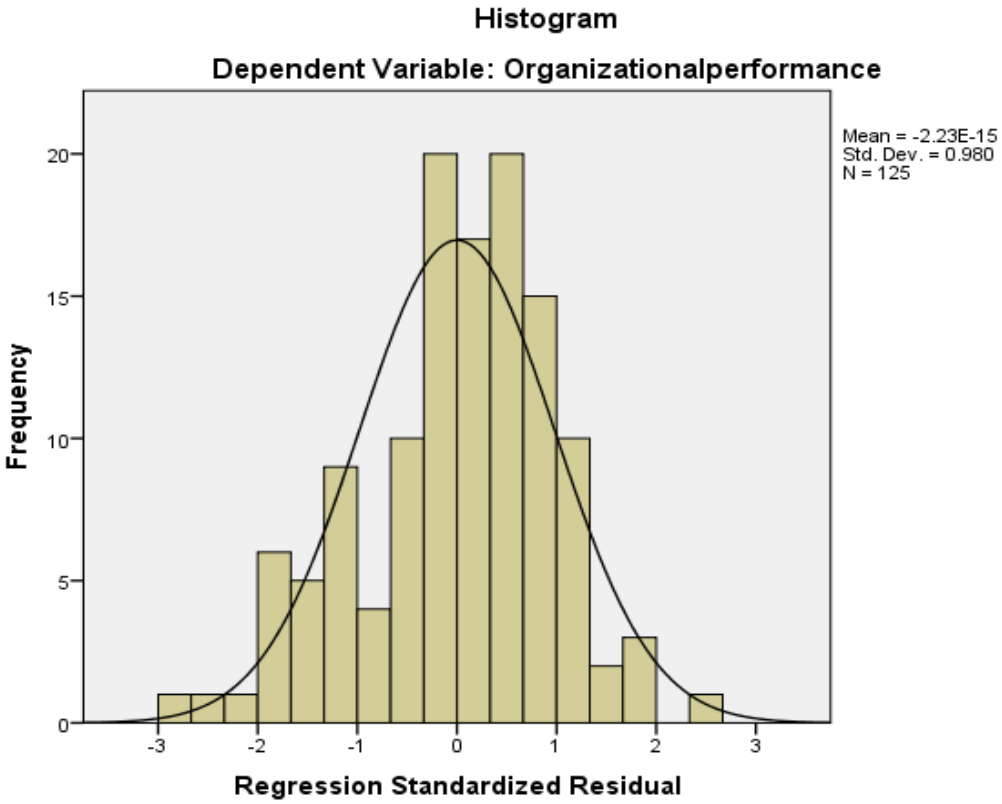
4.6.2. Model Assumptions Test

To make sure the data did not deviate from the presumptions underlying the application of linear regression, several diagnostic tests were carried out prior to the regression analysis. The data's linearity, multi-collinearity, and normality were all evaluated as part of these tests

4.6.2.1. Normality Test

A bell-shaped, symmetrical curve known as "normality" has smaller frequencies towards the extremities and a higher frequency of scores in the middle. The error term's normal distribution is checked using a normality test. A normality test was run on the data in this study, and the findings were displayed as a histogram. The histogram showed that the error terms were evenly spaced out.

Figure 4.1: Normality Test



Source: Field survey, 2023

4.5.2.2. Linearity Test

Linearity refers to the degree to which the change in the dependent variable is related to the change in the independent variables. The study conducted a linearity test to determine whether the relationship between supply chain integration factors (independent variables) and organizational performance (dependent variable) is linear or not.

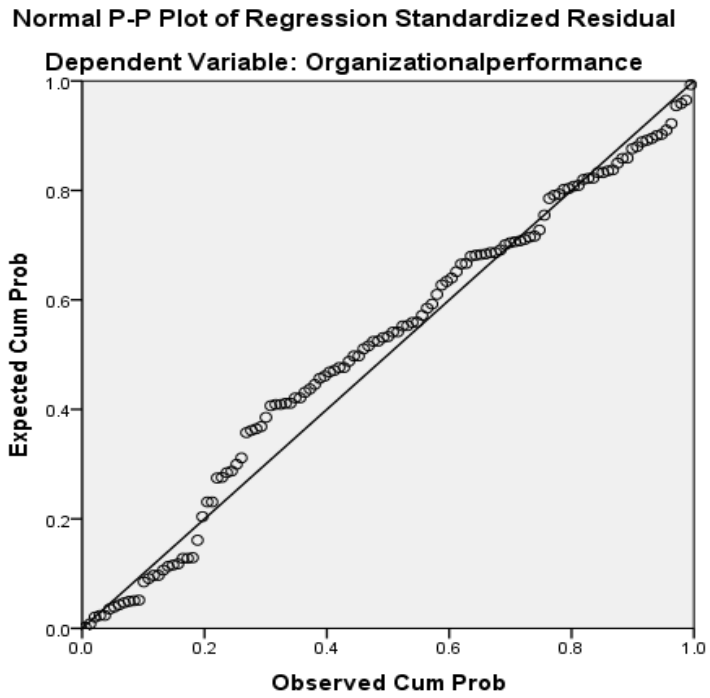


Figure 4.2: Linearity Test Results

Source: Field Survey, 2023

The scatter plot of residuals indicated that there were no significant differences in the spread of the residuals from left to right, as shown in Figure 4.2. This result suggests that the predicted relationship between the independent and dependent variables is linear. Additionally, the figure shows that the residuals were distributed around a mean of zero, indicating that the linearity assumption was fulfilled. Therefore, it is possible to conclude that the inferences made by the researcher about the population parameter from the sample are valid, and the relationship between the independent and dependent variables is linear.

4.6.2.2. Test of Multicollinearity

The term "multi-collinearity" describes the exact linear relationship that exists between some or all of the explanatory variables in the regression model. Predictive power overlaps or is shared when independent variables are multi-collinear. The variance inflation factor (VIF) and tolerance value tests are used by the researcher to identify multi-collinearity.. According to Tabachnick, B.G., and Fidell (2001), a tolerance value of less than 0.1 and a VIF greater than 10 indicate the presence of multi-collinearity in the data.

Table 4.11: Multi collinearity Assumption Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	Information integration	.780	1.283
	Resource sharing and coordination	.820	1.220
	Internal process integration	.876	1.142
	Supplier integration	.835	1.198
	External integration	.743	1.346

Source: Field survey, 2023

The results presented in Table 4.10 indicate that multi-collinearity is not a problem for the multiple linear regression models, as the Variance Inflation Factor (VIF) is less than 10 and the Tolerance is not less than 0.10. The VIF values range between 1.198 and 1.346, and the tolerance values for the variables range between 0.743 and 0.876. Therefore, the independent variables are not overlapped or highly related, and they are free from multi-collinearity problems that could potentially hinder the prediction ability of the multiple linear regression model.

4.6.2.3. Test for Heteroscedasticity

The homoscedasticity assumption is the idea that there will be an identical variance of errors for all levels of the independent variables. It follows that the distribution of errors across the variables is consistent. A plot of the standardized residuals against the regression's standardized predicted value can be used to visually verify for homoscedasticity. Ideal residuals are uniformly distributed and randomly distributed about zero (the horizontal line).. When the scatter is uneven, heteroscedasticity is present; typical patterns of violation include the shapes of fans and butterflies. By using SPSS to produce a scatterplot of standardized residuals versus standardized expected values, the researcher was able to evaluate homoscedasticity and discovered that it was not a significant issue. The residuals were randomly distributed around zero on the scatterplot, which demonstrated that the homoscedasticity criterion was satisfied.

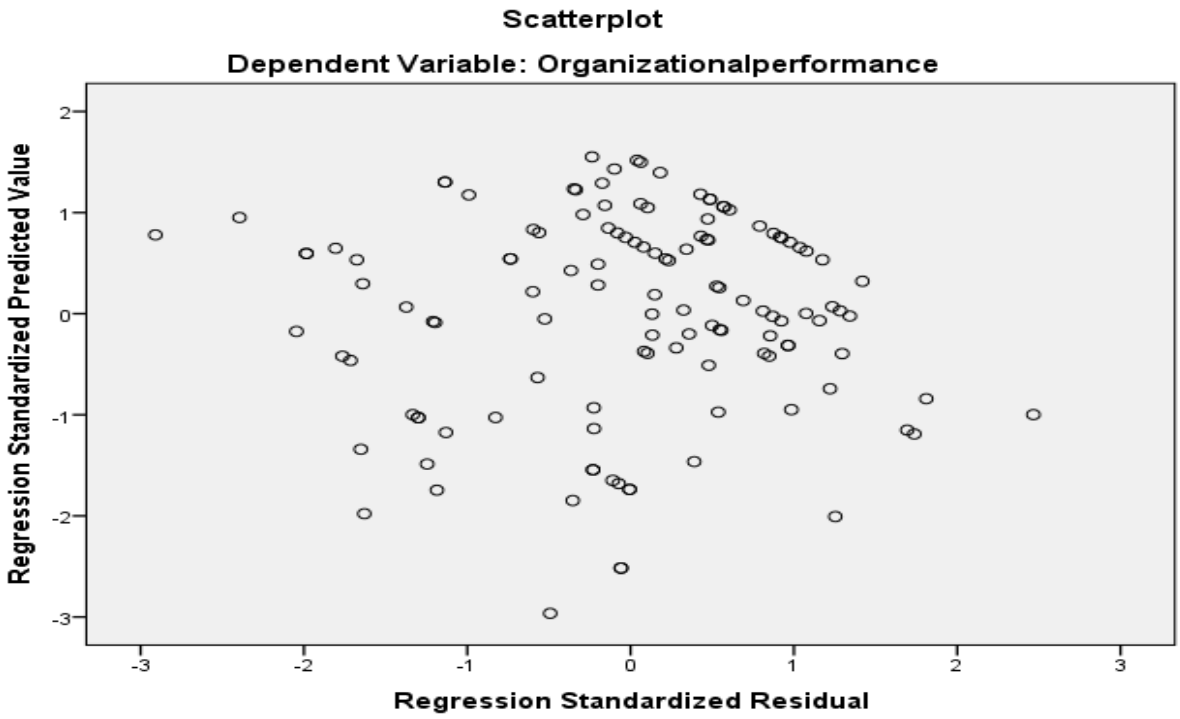


Figure 4.3: Heteroscedasticity

Source: Field survey, 2023After ensuring that the data satisfied the necessary multiple regression assumptions, a multiple regression analysis was performed to ascertain the statistical significance of each independent variable (regression coefficients), the degree to which the independent variables significantly predicted the dependent variable (ANOVA), and how well the regression model fit the data (model summary).

4.6.3. Regression Analysis

The researcher aimed to determine the role of each independent variable (Supplier integration, Information integration, Resource sharing and coordination, Internal process integration, and external integration) in predicting the dependent variable of organizational performance at the International Rescue Committee in Ethiopia. The following regression model was used to determine the extent to which the predictors affect the dependent variable:

4.6.3.1. Model Summary

This section presents the results of the multiple linear regression analysis conducted to examine the role of the independent variables on organizational performance. Multiple regressions were performed between organizational performance as the dependent variable and Supplier integration, Information integration, Resource sharing and coordination, Internal process integration, and external integration as independent variables.

Table 4.12: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.762[a]	.581	.563	.70156
a. Predictors: (Constant), External integration, Internal process integration, Supplier integration, Resource sharing and coordination, Information integration				
b. Dependent Variable: Organizational performance				

Source: Field survey, 2023

The adjusted R-squared value in Table 4.12 represents the correlation coefficient between the dependent variable (organizational performance) and the independent variables (Supplier integration, Information integration, Resource sharing and coordination, Internal process integration, and external integration). The regression effect between the dependent variable and the five independent variables together was found to be strong in this study and had a positive regression.

The model summary of the multiple linear regression analysis showed an R-value of 0.762, indicating a high degree of relationship between the independent and dependent variables. The R-squared value of the regression model was 0.581, indicating that 58.1% of the variance in organizational performance was accounted for by Supplier integration, Information integration, Resource sharing and coordination, Internal process integration, and external integration. However, the remaining 41.9% of the variance in organizational performance was not accounted for by these independent variables.

4.6.3.2. The Analysis of Variance (Model Fitness)

In this study, the model fit was examined among the various components of organizational performance, with five variables selected for analysis. The effect of these five independent variables (Supplier integration, Information integration, Resource sharing and coordination, Internal process integration, and external integration) was examined on the dependent variable, organizational performance, using multiple regression analysis.

Table 4.13: The Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	81.182	5	16.236	32.988	.000[b]
	Residual	58.571	119	.492		
	Total	139.752	124			
a. Dependent Variable: Organizational performance						
b. Predictors: (Constant), External integration, Internal process integration, Supplier integration, Resource sharing and coordination, Information integration						

Source: Field survey, 2023

Table 4.13 presents the analysis of variance (ANOVA) of the variables. The ANOVA shows the overall significance of the model in terms of statistical significance. The results of the analysis indicated that the F ratio, with an F value of 32.988, was significant with a p-value of 0.000. This indicates that the five independent variables (Supplier integration, Information integration, Resource sharing and coordination, Internal process integration, and external integration) taken together as a set are significantly related to the dependent variable of organizational performance.

The F critical value at a 5% level of significance is 0.492. Since the calculated F value of 32.988 is greater than the critical value, it shows that the model is significant. The value of F is large enough to conclude that the set coefficients of the independent variables are not jointly equal to zero. This implies that the combination of the variables significantly predicts the dependent variable of organizational performance.

4.6.4 Regression Coefficients

In a multiple regression analysis, the coefficient explains the average change in the dependent variable that results from a change in the independent variable of one unit. The unstandardized beta coefficient () shows how each factor has a different effect on the model. When a predictor variable has a high beta value () and a low p-value (0.05), it has statistically significant influence on the model. Conversely, a low beta value () and a high p-value ($p > 0.05$) show that the predictor variable has little to no significance in the model (George and Mallery, 2003).

Table 4.14: Regression Coefficients Analysis

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.135	.344		-.392	.696
	Information integration	.544	.066	.554	8.242	.000
	Resource sharing & coordination	.154	.057	.177	2.705	.008
	Internal process integration	.127	.052	.155	2.438	.016
	Supplier integration	.333	.075	.290	4.469	.000
	External integration	-.095	.060	-.110	-1.595	.113
a. Dependent Variable: Organizational performance						

Source: Field survey, 2023

The standardized coefficients are useful to know which of the different independent variables is more important. They are used in the comparison of the impact of any independent variable on the dependent variable.

The beta coefficient for information integration in this study was 0.554, which is greater than zero. The t-statistic is 8.242, with a p-value of 0.000, which is less than 0.05, indicating that the coefficient of information integration is significant at a 0.05 level of significance. This shows that information integration has a significant positive influence on organizational performance. This finding is consistent with the study of Wong, Lai, and Cheng (2016), which found that measurement integration had a significant effect on organizational performance. It also aligns with the findings of Lisanza (2013), who suggested that sharing information within the organization can improve functional performance, leading to improved organizational performance.

The beta coefficient for Resource sharing and coordination in this study was 0.177, which is greater than zero. The t-statistic is 2.705, with a p-value of 0.008, which is less than 0.05. This indicates that the coefficient of Resource sharing and coordination is significant at a 0.05 level of significance. This shows that Resource sharing and coordination have a significant positive influence on organizational performance. This finding is in line with the study of Mwai et al. (2018), which suggested that organizational resources can influence organizational performance. It is also consistent with the findings of Birhanu (2020), who found a significant relationship between Resources sharing and coordination and organizational performance.

The beta coefficient for internal process integration in this study was 0.155, which is greater than zero. The t-statistic is 2.438, with a p-value of 0.016, which is less than 0.05. This indicates that the coefficient of internal process integration is significant at a 0.05 level of significance. This shows that internal process integration has a significant positive effect on organizational performance. These findings are consistent with the study of Rosenzweig et al. (2003), who found a positive direct relationship between internal integration and organizational performance. Similarly, this study's results align with the findings of Koufteros et al. (2005), who established that internal process integration positively influences organizational performance.

The beta coefficient for Supplier integration in this study was 0.290, which is greater than zero. The t-statistic is 4.469, with a p-value of 0.000, which is less than 0.05. This indicates that the coefficient of Supplier integration is significant at a 0.05 level of significance. This shows that Supplier integration has a significant positive effect on organizational performance. This finding is consistent with the study of Choi et al. (2016), which found a positive relationship between

supply chain integration and firm performance. It also aligns with the findings of Ijomba (2010), who suggested that companies can improve their performance through an integrated supply chain, leading to higher profitability and increased customer satisfaction.

The coefficient of external integration was -.110 which is greater than zero. The t statistic of this coefficient is -1.595 with a p-value of .113 which is greater than 0.05. This implies that the coefficient of external integration is not significant at 0.05 levels. This shows that external integration has not significant effect on organizational performance.

Regression equation

A multiple regression model was used to determine whether independent variables, as symbolized by Ii= Information integration, RsC=Resource sharing and coordination, IpI= Internal process integration, Si=Supplier integration, and Ei=external integration altogether affected the dependent variable OP= Organizational performance. The Multiple regression models were as follows:

$$OP = \beta 0 + \beta 1X1 + \beta 2x2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \Sigma 0 + e$$

$$OP = \beta 0 + \beta 1(Ii) + \beta 2(RsC) + \beta 3(IpI) + \beta 4(Si) + \beta 5(Ei) + e$$

$$OP = -.135 + 0.554(Ii) + 0.177(RsC) + 0.155(IpI) + 0.290(Si) - 110(X5) + e$$

Where;

OP= the dependent variable (Organizational performance)

Ii= the first independent variable (Information integration)

RsC= the second independent variable (Resource sharing and coordination)

IpI= the third independent variable (Internal process integration)

Si= the fourth independent variable (Supplier integration)

Ei=the fifth independent variable (external integration)

β0 =intercept of the equation e = error term

The regression equation above shows that, by taking all factors into account constant at zero, the organizational performance will have a value of - 0.135. And the findings result also show that taking all other independent variables at zero, one unit increase in information integration would lead to a 55.4% increase in organizational performance; one unit increase in Resource sharing and coordination would lead to a 17.7%% in organizational performance, one unit increase in

Internal process integration would lead to 15.5% in organizational performances, one unit increase in Supplier integration would lead to increase in 29.0% increase in organizational performances, and one unit increase in external integration would lead to 11.0% decrease in organizational performance.

4.7 Supply Chain Management Practice

4.7.1. Warehouse Practice

Table 4.15: Warehouse Practice

Warehouse Practice	Mean	Std. Deviation
The warehouse implements good warehousing and distribution practice	2.91	1.10
Receiving dispatch inventory management uses an electronic system (warehouse management system)	2.48	1.47
Ensures the product leaves the warehouse clean and damage free for efficient delivery to the beneficiary	3.29	0.88
The warehouse confirms all the goods that arrived are perfectly matched with what was originally ordered	3.31	1.10
Grand Mean	2.99	

Source: Field survey, 2023

The descriptive analysis of procurement management practices is presented in Table 4.15 above. Accordingly, the warehouse implements good warehousing and distribution practices and has a mean value of 2.91 which indicates that these practices are moderately implemented. The mean value for the response the organization has electronic warehousing and inventory management system is 2.48 which shows the warehousing functions are not adequately managed by the electronic system. The mean value for the response's product leaves the warehouse clean and damage free for efficient delivery to the beneficiary is moderate which is 3.29. The mean values for the responses the Warehouse confirms all the goods arrived are perfectly matched with what originally ordered which is 3.31 indicating that the warehouse tries to ensure the delivered products are as per the order. Based on the analysis we can conclude that the warehouse has moderately implemented good warehousing and distribution practices. However, the electronic

warehousing and inventory management system needs improvement as it is not adequately managed by the system. The warehouse also needs to focus on ensuring that the products leave the warehouse clean and damage-free for efficient delivery to the beneficiaries. On a positive note, the warehouse tries to ensure that the delivered products are as per the order by confirming that all the goods arrived are perfectly matched with what was originally ordered.

Table 4.16: Supply Chain Supply Chain-Fleet and Distribution Practice

Fleet and Distribution Practice	Mean	Std. Deviation
Delivering the right product to the right client at the right time	3.51	0.92
my company carefully decides to optimize the transport mode	3.23	0.84
Efficient transportation of relief personnel to maximize the humanitarian response	3.77	0.64
Utilizing different transport optimization technics to deliver supplies with the least possible cost	2.78	1.11
Grand mean	3.32	

Source: Field survey, 2023

Table 4.16 presents the descriptive analysis of fleet and distribution management practices in the organization. The mean value for delivering the right product to the right client at the right time is high, with a value of 3.51, indicating that the organization attempts to deliver supplies within the shortest time possible as per the schedule. The mean value for optimizing the transport mode is 3.23, indicating that the organization tries to optimize the transport mode. The mean value for efficient transportation of relief personnel to maximize the humanitarian response is 3.77, indicating that the organization well-implements these practices. However, the mean value for Utilizing different transport optimization technics to deliver supplies with the least possible cost is moderate, with a value of 2.78, indicating that there is room for improvement to attain efficient and cost-effective transportation practices that will maximize cost reduction. Overall, the organization has good fleet and distribution management practices, but there is still room for improvement to achieve optimal efficiency and cost-effectiveness. The implementation of optimization strategies for the transportation of goods, such as planning when and how much to send from each origin to its appropriate destination over a set period, is suggested in the literature as a potential means of reducing the overall cost of logistics (Khan, 2014).

Table 4.17 Supply Chain-Procurement Practice

Procurement Practice	Mean	Std. Deviation
my organization strategically tries to shorten the lengthy procurement process	3.09	1.00
my organization majorly conducts procurement as per the annual procurement plan	2.60	0.88
My organization has an effective procurement follow-up and monitoring system	3.45	0.87
my organization violate procurement procedure for the sake of fastening the work and delivery	3.42	0.85
my organization's procurement unit uses IT to facilitate procurement activities	3.58	0.79
Grand Mean	3.22	

Source: Field survey, 2023

Table 4.17 presents the descriptive analysis of procurement management practices in the organization. The mean value for strategically shortening the lengthy procurement process is

3.09, indicating that these practices are moderately implemented. The mean value for the response the organization majorly conducts procurement as per the annual procurement plan is 2.60 which indicates the procurement conducted does not adequately adhere to the procurement plan. More emphasis should be given to improving the utilization of procurement plans. The mean value for the response organization having an effective procurement follow-up and monitoring system is moderate which is 3.45 implying that the organization is well practicing the monitoring and follow-up system.

The organization violate procurement procedures for the sake of fastening the work and delivery of goods and scored a low mean value of 1.58 implying that the organizations adhere to procurement policy and standard operating procedure. The mean value for the responses the organization's procurement unit uses IT to facilitate procurement activities high which is 3.58 indicating that the organization is supported by the electronic system. Based on the analysis presented in the table, it can be concluded that the organization is moderately implementing strategies to shorten the lengthy procurement process. However, more emphasis should be given to improving the utilization of procurement plans as the procurement conducted does not adequately adhere to the procurement plan. The organization is well-practicing the monitoring and follow-up system, but it is important to note that the organization adheres to procurement policy and standard operating procedures. On a positive note, the organization is well-supported by the electronic system as the procurement unit uses IT to facilitate procurement activities. Overall, the organization has good procurement management practices, but some areas need improvement to ensure adherence to procurement plans and policies.

CHAPTER FIVE

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

Introduction

Examining the impact of supply chain integration on the organizational performance of the international rescue committee in Ethiopia was the main objective of this study. The key conclusions drawn from the research findings were outlined and addressed in this chapter. Additionally, it covered the analysis's findings and recommendations that interested parties, as well as upcoming scholars, may employ.

5.1 Summary of the Study

The outcomes of the study examining the impact of supply chain integration on the operational effectiveness of the IRC in Ethiopia are presented in this section. As per the analysis in the preceding section, the study's results can be summed up as follows:

The major objective of this research was to analyze the role of supply chain integration on the organizational performance of the International Rescue Committee (IRC) in Ethiopia. Data was gathered using structured questionnaires to meet this goal, and version 21 of the Statistical Package for Social Sciences (SPSS) software was used to analyze the data. While inferential statistics like correlation analysis, regression, and multivariate analysis were used to come to conclusions and make inferences about the relationships between variables, descriptive statistics like frequencies, percentages, mean, and standard deviation were used to summarize the data.

Based on the background information collected from respondents, most of them (54.4%) were women. The most common age group was 31-40 years 64(51.2%) and the majority had a bachelor's degree (80.8%). The majority of respondents held the position of officer (64.8%) and experience range of 6-10 years (40%).

The analysis found that information integration had the highest mean value (M=3.68), followed by resource sharing and coordination (M=3.63), internal processes integration (M=3.62), supplier integration (M=3.61) and external integration (M=3.60) respectively. This suggests that humanitarian organizations have a high extent of supply chain integration practices, as all dimensions scored highly on the survey scale instrument.

The correlation analysis found that all independent variables were positively and significantly correlated with the dependent variable (organizational performance) at P<0.05. Information integration had a moderate relationship with organizational performance (r=0.635), as did supplier integration (r=0.484) and information integration (r=0.448). Internal process integration (r=.345), resource sharing and coordination (r=.335). However, external integration had a relatively weak relationship with organizational performance (r=0.216, p<0.05).

Regarding the role of information integration on the organizational performance of the (IRC) in Ethiopia the study found that information integration have a positive and statistically significant relationship with organizational performance (β=0.554, P<0.05). The finding is consistent with previous studies, such as Wong, Lai, and Cheng (2016), & Lisanza (2013) who stated that sharing of information within the organization improved functional performance and leads to organizational performance.

With respect to the role of resource sharing and coordination on the organizational performance of the IRC in Ethiopia the study found that resource sharing and coordination have a significant relationship with organizational performance (β=0.177, P<0.05). This finding is consistent with the study of Mwai et al. (2018), and Birhanu (2020) who stated that organizational resources influence organizational performance.

Concerning to the effect of internal process integration on the organizational performance of the IRC in Ethiopia the study found that internal process integration has a significant relationship with organizational performance (β=0.155, P<0.05). These findings are in line with the study of Rosenzweig et al. (2003), and Koufteros et al. (2005) who established a positive direct relationship between internal integration and organizational performance.

According to the study, there is a positive and statistically significant association between supplier integration and organizational performance for the IRC in Ethiopia (=0.290, P0.05). This result in line with findings of Choi et al. (2016) and Ijomba (2010), who discovered a strong correlation between supply chain integration and business performance.

With respect to the role of external integration on the organizational performance of the IRC in Ethiopia the study found that external integration has insignificant and negative relationship with organizational performance (β=-0.110, P >0.05).

Following to the model summary of the multiple regression analysis, the study's five dimension could account for 58.1% of the variation in the number of international rescue committees in Ethiopia. Another factor outside the model is responsible for the remaining 41.9% of the explanation.

The created model is statistically significant at a 0.05% level, according to the ANOVAs table.

The analysis found that warehouse practice, fleet and distribution and Procurement practice had the moderate mean value (=2.99), (=3.2), and (2.85) respectively.

5.2. Conclusions

The purpose of the study was analyzing the role of humanitarian SCI on the performance of the international rescue committee Ethiopia. The study established that four SCI dimensions Supplier integration, and Internal process integration, Information integration, Resource sharing and coordination, significantly and positively affect organizational performance on the other hand external dimension has negatively affect organizational performance.

In line with the study there is a high degree of supply chain integration practices in the international rescue committee Ethiopia, with a strong culture of information sharing, resource sharing, and coordination across the departments and directorates.

Analysis of inferential statistical have revealed strong and positive relationships between the dependent and independent variables. The independent variable of supply chain integrations has specifically shown considerable, strong, and favorable connections with the independent variable of organizational performance, which includes efficiency, effectiveness, service quality, and accountability. Information integration, resource sharing and coordination, and internal process integration are the three names used to define these interconnections. According to the study, these variables affect organizational performance significantly and fluctuate along with it.

The independent variables examined have a significant and favorable impact on the international rescue committee's organizational effectiveness. The study comes to the overall conclusion that internal process integration, resource sharing and coordination, supplier integration, and information integration all contribute to the success of the international rescue committee in Ethiopia. Information integration was found to be the most crucial element, followed by resource sharing and coordination, as stated by the majority of respondents.

The study's findings indicate regarding warehousing the result depicts implementation of electronic system or warehouse management system shows low implementation, when we see the procurment practice the result depicts there is effective procurment procurement follow up and alignment with procurement procedure and manual. Regarding fleet and distribution practice it was found the organization product delivery to the clients at the right time was satisfactory.

Integration of the supply chain accounted for 58.1% of the variation in organizational performance. Other factors that were not considered by the study could account for 41.9% of the organizational performance.

5.3. Recommendations

The following suggestions were sent to the international rescue committee Ethiopia as per the study's results and conclusions.

- The study has revealed that SC integration is crucial for improving the effectiveness of organizations; hence it is recommended that humanitarian organizations strive to enhance their integration practices across all dimensions to fully leverage its benefits.
- To enhance the organizational performance and organizational performance of the International Rescue Committee Ethiopia, it is recommended to focus on improving internal process integration. This can be achieved through the development of cross-functional teams and joint activities to improve collaboration across functions, as well as improving real-time information sharing and connectivity between different functions. Additionally, regular reviews and updates of internal process integration practices can help ensure alignment with the organization's strategic plan and objectives.
- International Rescue Committee Ethiopia would be to design dynamic supply chain processes that are aligned with the organization's overall strategic plan. This would involve developing supply chain processes that are flexible and adaptable to changes in the organization's objectives, allowing the organization to respond promptly to changing circumstances.
- From the study, it was established that use of electronic /warehouse management system had been minimally exploited. The study therefore recommended international rescue

committee to strengthen and implement electronic warehouse management system and improve adhering good warehousing and distribution practice

- Regarding the Procurement practice the organization should strength the consistency utilization of procurement plan.

5.4. Recommendations for Future Research

- The study could be enriched if it had taken into consideration all supply chain functions, including those that were not included in this study. Several academics assert that a wide range of participants, including governments, NGOs, funders, vendors, end recipients, local NGOs, local community, and commercial actors, are involved in supply chains for humanitarian intervention., As a result, the researcher suggests expanding the scope of future research to include supply chain integration with program departments and other directorates.
- In order to help improve the effectiveness of humanitarian organizations, similar cross-sectional and longitudinal research is required. The researcher also urges more study that acknowledges integration with of public institutions, commercial traders, and donor organizations as empowering actors in the supply chains for humanitarian intervention.

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APPENDIX I: Questioner

ADDIS ABABA UNIVERSITY, COLLEGE OF SCHOOL OF COMMERCE, GRADUATE STUDIES, DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT

Questioner to be filled by International Rescue Committee Staff

Dear respondents, I'm a graduate student at Addis Ababa University College of Commerce in the Department of Logistics and Supply Chain Management. Currently, I'm conducting a research entitled 'The Role of Supply Chain Integration on the Performance of international rescue committee in Ethiopia as partial fulfillment of the requirements for the Degree of Master of Arts in Logistics and Supply Chain Management, Addis Ababa University, School of Commerce.

The purpose of this questionnaire is to gather primary data for the proposed study, and hence you are kindly requested to assist in the successful completion of the study by providing the necessary information. Your participation is entirely voluntary, and the questionnaire is completely anonymous. I confirm that the information you share will stay confidential and only be used for academic purposes. So, you're genuine, frank, and timely response is vital for the success of the study. I want to thank you in advance for your kind cooperation and dedication of your precious time to filling out this questionnaire.

Sincerely yours,

Capital Berhanu

Instruction:

1. No need of writing your name.
2. Indicate your answer with a check mark (√) or (X) or Circle on the appropriate block/cell for all questions.
3. If you need further explanation, please contact me and discuss the matter freely at
    - ♣ (Telephone No. 0923786200,
    - ♣ E-mail capbpharmberhanu@gmail.com)

Section A:

General Information

This part of the questionnaire is intended to gather general information about the background of the respondent and the organization.

1. Sex: Female □ Male □
2. 1Age: Under 20 Years□ 20-30 Years □ 31-40 Years 4) Above 40 Years
3. Educational Qualification: First Degree □ College diploma □ MA and above □
4. Years stayed at the organization: < 1 Year □ 1-4Years □ 5-8 Years □ Over 9 Years □
5. How long have you been working in the humanitarian sector? Below 2 Years □ 2-5 Years □ 6-10 Years □ above10 Year □
6. Your department/work unit: Procurement □ 2) Warehouse and Asset □ Fleet Management□ Finance □ Health Nutrition and Environmental Health □ Partnership and Grant □ Education CYPD and CWI □ Human Resource □ Information Technology □ Others □

Section B

Please indicate the extent to which the following statements concerning the level of SCM integration within your organization occur.

Use the scale of 1= does not occur 2= small extent 3= medium extent 4= large extent 5= very large extent.

B1	**The extent of Supply Chain Integration**					
	Information Integration					
		1	**2**	**3**	**4**	**5**
1	The organization **share information** with implementing partners on supply chain strategy and operational processes preparedness	☐	☐	☐	☐	☐
2	The organization share information with implementing partners on **disaster preparedness** stages	☐	☐	☐	☐	☐
3	My organization share information with implementing partners in **undertaking assessment**,	☐	☐	☐	☐	☐

4	My organization shares information with implementing partners in terms **of forecasting and demand** planning	☐	☐	☐	☐	☐
5	My organization maintains an open and transparent information flow for the organization and the implementing partners on inventory tracking and tracing of humanitarian aids shipment	☐	☐	☐	☐	☐
6	My organization maintains an open and transparent information flow between other humanitarian organizations and the implementing partners on the monitoring and evaluation of humanitarian projects	☐	☐	☐	☐	☐
B2	**Resource sharing and coordination**	**1**	**2**	**3**	**4**	**5**
7	As a humanitarian organization engaged in Supply Chain Integration with other operators in the sector to enhance our capacity in terms of resource **mobilizations**	☐	☐	☐	☐	☐
8	As a humanitarian organization engaged in Supply Chain Integration with other operators in the sector to enhance our capacity in terms of undertaking consolidated **procurement**	☐	☐	☐	☐	☐
9	As a humanitarian organization engaged in Supply Chain Integration with other operators in the sector to enhance our capacity in terms of undertaking transportation **executions**	☐	☐	☐	☐	☐
10	As a humanitarian organization engaged in Supply Chain Integration with other operators in the sector to enhance our capacity in terms of undertaking stock **asset management**	☐	☐	☐	☐	☐
11	As a humanitarian organization engaged in Supply Chain Integration with other operators in the sector to enhance our capacity in terms of undertaking extended **point of delivery**					
12	As a humanitarian organization engaged in Supply Chain Integration with other operators in the sector to enhance our capacity in terms of undertaking facility **sharing**					
B3	**Internal process integrations**					

		1	2	3	4	5
13	In my organization, every supply chain joint undertakes activities among other functions of the organization in terms of developing periodical forecasting **and demand management** process.	☐	☐	☐	☐	☐
14	In my organization, every supply chain function jointly undertakes activities among other functions of the organization in terms of developing short, medium, and long-term **plans**	☐	☐	☐	☐	☐
15	In my organization, every supply chain functions participate in joint activities among other functions of the organization in terms of **undertaking to source** of humanitarian aid including goods and services	☐	☐	☐	☐	☐
16	In my organization, every supply chain functions participate in joint activities among other functions of the organization in terms of **undertaking the delivery** of humanitarian aid including goods and services for the recipient or beneficiaries	☐	☐	☐	☐	☐
B4	**Supplier integration**					
17.	We entered into a long-term contract arrangement with suppliers					
18.	We consider quality as our number one criterion in selecting suppliers.					
29.	We regularly solve problems jointly with our suppliers					
20.	We have helped our suppliers to improve their product quality					
21.	We include our key suppliers in our planning and goal-setting activities					
22.	We actively involve our key suppliers in new product development processes					

23.	Our suppliers are critical to the success of our organization					
24.	There is trust between our firm and suppliers					
	External integration					
25.	Sourcing and tendering decisions are easily made due to SC integration and information sharing					
26.	There are external SC integration that fastens flows such as physical and funds					
27.	Distribution and delivery are made at the right time and place due to SC integration information sharing and coordination					
28.	There is the integration of objectives planning and resources with external organizations					

Section C: Organizational Performance

Please indicate the extent to which the following statements concerning the level of SCM integration within your organization occur.

Use the scale of 1= does not occur 2= small extent 3= medium extent 4= large extent 5= very large extent.

1	**Effectiveness (Cost):** There is better decision-making ability due to SCM integration and real-time visibility and improved information flow: better sourcing, tendering, stock monitoring, and transportation management decisions.					
2	**Efficiency (Lead times)**: With an integrated SCM function, there is **reduced lead time** in the organization as information moves faster					
3	**Quality of services**: SCM integration has assisted in delivering emergency food supplies to beneficiaries with consistence quality, improved services offered to the beneficiary					

4	**Accountabilit**y: Due to SCM integration there is improved transparency of supply chain processes: the way activities are conducted is visible to others enabling better accountability towards beneficiaries and donors					
30	**Responsiveness:** Increased delivery performance and response rate to the disaster have been achieved due to integration: Enabling the organization to achieve timeliness in humanitarian aid					
31	**Sustainability:** With integrated SCM functions sustainability of projects enhanced through enhanced creating systems which otherwise not possible					

Section D

Level of agreement on humanitarian logistics practices

Please indicate the extent to which the following statements concerning the level of SCM integration within your organization occur.

Use the scale of 1= does not occur 2= small extent 3= medium extent 4= large extent 5= very large extent.

D1	**Procurement Management Practices**	**1**	**2**	**3**	**4**	**5**
1	my organization strategically tries to shorten the lengthy procurement process	☐	☐	☐	☐	☐
2	my organization majorly conducts procurement as per the annual procurement plan	☐	☐	☐	☐	☐
3	My organization has an effective procurement follow-up and monitoring system	☐	☐	☐	☐	☐
4	my organization violate procurement procedure for the sake of fastening the work and delivery	☐	☐	☐	☐	☐
5	my organization's procurement unit uses IT to facilitate procurement activities	☐	☐	☐	☐	☐
D2	**Fleet and Distribution Practice**		2	3	4	5
1	Delivering the right product to the right person at the right time	☐	☐	☐	☐	☐
2	Efficient transportation of relief personnel to maximize the survival rate of the affected	☐	☐	☐	☐	☐

	population					
3	Quick transportation of relief items to minimize the cost of operation	☐	☐	☐	☐	☐
4	Using various transport optimization models to deliver supplies with the least possible cost	☐	☐	☐	☐	☐
5	Using multimodal transportation in non-emergency conditions to achieve flexibility and resilience	☐	☐	☐	☐	☐
D3	**Warehouse Management Practices**	**1**	**2**	**3**	**4**	**5**
1	The warehouse implements good warehousing and distribution practice	☐	☐	☐	☐	☐
2	Receiving dispatch inventory management uses an electronic system (warehouse management system)	☐	☐	☐	☐	☐
3	Ensures the product leaves the warehouse clean and damage free for efficient delivery to the beneficiary	☐	☐	☐	☐	☐
4	The warehouse confirm all the goods that arrived are perfectly matched with what was originally ordered	☐	☐	☐	☐	☐
5	The warehouse implements good warehousing and distribution practice	☐	☐	☐	☐	☐