

Addis Ababa University School of Commerce

**Department of Logistics and Supply Chain Management
Post Graduate Program**

**Assessment on Enterprise Resource Planning System Utilization with Special
Reference to Supply Chain Management**

In The Case of Ethio Telecom Sourcing

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**A Thesis Submitted to School of Graduate Studies of Addis Ababa University
School of Commerce**

**In Partial fulfillment of the requirements of the Master of Arts in
Logistics and Supply Chain Management**

**Assessment on Enterprise Resource Planning System Utilization with Special
Reference to Supply Chain Management
In The Case of Ethio Telecom Sourcing**

By: Minas Ermias

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Addis Ababa, Ethiopia

Statement of Declaration

I, Minas Ermias, declare that this Master's research "**Assessment on Enterprise Resource Planning System Utilization with special reference to Supply Chain Management: ethio telecom in focus**" is submitted in partial fulfillment of the requirements for the degree of Master's of Arts in Logistics and Supply Chain Management at the School of Commerce, Addis Ababa University. The thesis is my original work and has not been presented for a degree in any other university and all sources of materials used for the thesis have been duly acknowledged.

Declared by:

Minas Ermias

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Statement of Certification

This is to certify that Minas Ermias has carried out his research work on the topic entitled:

“Assessment on Enterprise Resource Planning System Utilization with special reference to Supply Chain Management: ethio telecom in focus” is his original work and is suitable for submission for the award of Masters of Art Degree in Logistics & Supply Chain Management.

Advisor: Temesgen Belayneh (PhD)

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**Assessment on Enterprise Resource Planning System Utilization with Special
Reference to Supply Chain Management
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Acronym and Abbreviation

CSCMP - Council of Supply Chain Management Professionals

CRM – Customer Relationship Management

ERP – Enterprise Resource Planning

ET – Ethio Telecom

ETC – Ethiopian Telecommunication Corporation

GTP – Growth & Transformation Plan

IT – Information Technology

LSCM – Logistics & Supply Chain Management

PoR – Purchase Order Requisition

SCM - Supply Chain Management

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Abstract

Different major changes have enabled companies to actualize the power of supply chains to a degree impossible in the past. Among those technologies have enabled the convergence of SCM and computerized networking toolsets capable of linking all channel partners into a single trading community. Depending on this the research tries to address the importance of Enterprise Resource Planning System Utilization with special reference to Supply Chain Management by focusing the relation between system features and the supply chain management performance in case of ethio telecom. The researcher distributed questionnaire and conduct interview to collect data from employees and managers those who have close-fitting with the supply chain management activities which are sourcing department and supply chain management department. The data analysis is conducted through statistical technique using SPSS. The result of the analyses indicate that system features have positive correlation with supply chain management and each system features are explained. Finally, the researcher provides valuable conclusion and recommendation based on the analysis result.

CHAPTER ONE

Introduction

This chapter aims to give some highlight about the research topic and discuss on research problem, research questions and objectives for carrying out the study.

1.1 BACKGROUND OF THE STUDY

The Council of Supply Chain Management Professionals (CSCMP) defines **logistics** as “that part of SCM that plans, implements, and controls the efficient, effective forward and reverses flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers’ requirements”. (David Frederick Ross, 2011)

The Association for Operations Management defines SCM as the design, planning, execution, control, and monitoring of supply chain activities with the objective of creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand, and measuring performance globally. (David Frederick Ross,2011)

SCM is about a company integrating its process capabilities with those of its suppliers and customers on a strategic level. Integrative supply chains consist of many trading partners participating simultaneously in a collaborative network containing multiple levels of competencies and driven by various types of relationships. SCM enables companies to activate the synergy to be found when a community of firms utilizes the strengths of each other to build superlative supply and delivery processes that provide total customer value.

Telecom industry becomes tremendously changed time to time with vast and rapid scope. Expectation of customers of this industry also diverges accordingly. Telecommunication sector has also an opportunity to generate huge amount of revenue. The impact of telecom industry has significant role on social, cultural and economic sector in addition to the governmental and private sectors.

Ethio telecom was established on December 2010 by the decision of the government of Federal Democratic Republic of Ethiopia to transform the previous traditionally operating corporation (ETC) with a vision to be a world class telecom operator. Ethio provides different kinds of products and services all over the country and act as a sole service provider. In order to achieve the government goal mainly focus on GTP 1 as well as the company strategic plan “being world class telecom operator” which ultimately repairs, develop and maintain modern information and communication network infrastructure and develop & maintain better organizational structure, capabilities and readiness.

Among the capabilities, implementation of information technology (IT System Utilization) has become an absolute requirement for success in today’s business environment and to be a world class operator. For the implementation of ERP for SCM, there are several factors that drive to take IT system utilization as mandatory, among those:

- The strategic outlook push to use IT system technology for office transaction automation
- Companies have turned to use different systems and applications in order to deal with the increasingly complex requirements of doing business in a fast-paced global environment.
- Customers and suppliers have continued to demand instantaneous response and full information visibility via online and in real-time.
- The rapidly changing forms of dealing with shrinking life cycles for everything have made the ability to closely link customers, producers, and suppliers a requirement for competitive survival.
- The integrative power of the Internet is requiring supply chains to have the ability to rapidly transfer transaction information and marketplace intelligence from buyer to supplier.
- Finally, to optimize the competitive and monopoly advantage.

The focus of IT system utilization should be on supporting the effectiveness and efficiency of the SCM by understanding the change in global market, needs of customers, the ability to be more flexible to handle the dynamics in the life cycle of products in specific market and assuring rapid transfer of information for both parties, as a result it becomes core competency of the company.

To enable this, the most advanced group of integrated systems are the ERP class systems that include mechanisms based on planning and forecasting, which support the management of the entire enterprise and integrate all of its activity. The effective implementation and utilization of such a system can bring about many benefits, beginning with the most general, such as enterprise management and information flow enhancement. Consequently, improvement of economic indicators is achievable, which finally leads to an increase in enterprise profitability.

To this end the study assessed enterprise resource planning system utilization with special reference to supply chain management on ethio telecom sourcing practices.

1.2 STATEMENT OF THE PROBLEM

SCM is important because companies have come to recognize that their capacity to continuously reinvent competitive advantage depends less on internal capabilities and more on their ability to look outward to their networks of business partners in search of the resources to assemble the right blend of competencies that will resonate with their own organizations and core product and process strategies (David Frederick Ross, 2011).

Today, three major changes have enabled companies to actualize the power of supply chains to a degree impossible in the past. To begin with, today's technologies have enabled the convergence of SCM and computerized networking toolsets capable of linking all channel partners into a single trading community. Second, new SCM concepts and practices have emerged that continually cross-fertilize technologies and their practical application. Finally, the requirements of operating in a global business environment have made working in supply chains a requirement. Simply, those companies that can master technology-enabled SCM are able to build sustainable competitive advantage and stay in today's highly competitive, global marketplace. (David Frederick Ross, 2011: 47)

Ethio telecom has a vast number of customers all over the country since it is the only telecom service provider, and its customers are also disbursed in different geographical location of the country. In order to fulfill the need and desire of these disbursed customers, the implementation of technology to support the supply chain management was mandatory.

Accordingly, one of the cornerstones made by ethio telecom is the implementation of different information system technology for supporting different activities in the company. ERP is one of the technology deployed by ethio telecom in order to support different tasks, among these SCM is the main activity supported by this technology transformation era. (Company Profile, Dec, 2015)

Execution of different activities of supply chain becomes more manageable due to the implementation of ERP. The ERP implementation of ET is respective with supply chain management is categorized in procurement and resource management. The procurement activity starts from the purchase request from user department with the approval of respective delegates based on the organization hierarchical delegation. The purchase order request (PoR) reaches to the buyer through the system and forwarded to the awarded supplier after accomplishment of different purchasing activities. Based on the agreement signed between buyer and supplier the item will be delivered to the buyer's warehouse and then information has feed to the system to continue logistics activities. The scope of logistics activities is focused on warehousing, inventory management and internal resource movement. Based on the information above the preliminary research was done by the researcher on the implemented supply chain system on ERP as a system user and external observer, and in addition informal discussion was made with selected section managers and interview has been done with some department officers to make sure existence of challenges and problems that require to conduct this thorough assessment research.

The SCM module has limited implementation scope (Business case developed for this research, for instance some activities that supports the movements of goods from receiving and issuing at and from main warehouse to respective destination is handled manually since the system implementation is limited at some stage, these activities are currently performed manually. The

procurement process through the system ends on issuing of purchase order to the suppliers since the iprocurment module was not integrated with the supplier and affects time utilization and system dependency while working manually. This is the result of lack of integration on the system with suppliers, vendors, service providers, new system.

During initial implementation of the system the participation of users was limited due to this frequent new development requests and modification on the system has made, this affects the smooth operation of the already implemented modules and the day to day activities of supply chain through the system.

The researcher also identified that some users are complaining on functionality and availability of complete information from the system due to absence of fulfilling user need or requirement. The other main problem identified is that the item description and item code creation is not standardized. The same item has different description which results different item codes will be given to the same item. This consequences duplication of description and codes on the system and affects smooth operation of supply chain.

The other major problem identified is that the inconsistency between the physical and system stock balance observed during physical checking, absence of stock visibility of all warehouse including shops and stakeholders (i.e distributors and franchise shop). The last but not the least problem recognized is inefficiency of ethio's end users as well as back office system support team, as a result it affects the day-to-day activities of the supply chain through the system.

Therefore, this formal and comprehensive assessment research on enterprise resource planning system utilization with special reference to supply chain management might be able ethio telecom to identify major problems on system technology utilization and able to implement integrated and holistic SCM within and between its stakeholders.

1.3 BASIC RESEARCH QUESTIONS

Thus, this research study has tried to seek answer to the following research questions:

- What is the level of integration of SCM module on ERP system with different members of the supply chain and its effect?
- What are the challenges in ethio telecom on system technology utilization for integrated and holistic SCM?
- What is the degree of the relationship between system feature and supply chain performance?
- What is the capability of ethio telecom to take over all system supports to end users related to SCM module?

1.4 OBJECTIVE OF THE STUDY

This part of the study has been focused to general and specific objectives of the study.

1.4.1 GENERAL OBJECTIVE

This study generally aimed to assess on Enterprise Resource Planning System Utilization with special reference to Supply Chain Management on ethio telecom sourcing practices based on the implemented ERP system.

1.4.2 SPECIFIC OBJECTIVE

In an attempt to answer the research questions raised, the study has tried

- ✚ To investigate the level of integration of SCM module on ERP system with different members of the supply chain and its effect
- ✚ To assess challenges in ethio telecom on system technology utilization for integrated and holistic SCM
- ✚ To see the relationship between system feature and supply chain performance.

- ✚ To investigate the extent of the company to take over all system support related to SCM module.

1.5 OPERATIONAL DEFINITIONS

Telecom Service Provider:-

The one who provide Telecom service, it includes; Fixed Telephone, Mobile Telephone, Broadband and 4G, 3G Internet, Fax and other services.

iProcurement:-

The procurement activities can be handled through Internet technology, which is one of the famous module on ERP which support the end-to-end effectiveness of SCM (source – ethio telecom ERP user manual, 2012).

1.6 SIGNIFICANCE OF THE STUDY

This research paper has importance to ethio telecom as a reflection to see the effective implementation and use of ERP for SCM modules with related to performance enhancement. In general the company will be benefited since employees gave their opinion and suggestion about the practice of ERP SCM modules which will be input for corrective actions to be done. This research study might also be helpful as a base to conduct in depth assessment on ERP implementation in ET as a whole. In general the finding and result of this research is communicated to ethio telecom as an important inputs in the area so that they will able to evaluate their system utilization practices in related to ERP implementation, and identify focus area and take necessary action specific to the supply chain management module.

Furthermore, the findings also serve as input for other companies that need to implement ERP system or already implemented the system.

In addition, this research is used to serve the researcher to fulfill the partial requirement for his Master of Degree Program in LSCM. Finally, the study also used as a reference material for other researchers who want to make further research in this area.

1.7 SCOPE OF THE STUDY

The study was focused to investigate enterprise resource planning system utilization with special reference to supply chain management on ethio telecom supply chain & sourcing practices based on the implemented ERP system. Ethio telecom supply chain is extended in to six zones, eight regions and at corporate level, while due to time and financial constraint the researcher focus only at ET's corporate level. Due to the nature of the company there are vast numbers of internal system users of SCM modules on ERP, but almost they are homogenous. According to Neuman (2007), smaller samples are sufficient when less accuracy acceptable when the population is homogeneous or when only a few variables are examined at a time. Having this, the study focused on Sourcing and Facility Division at head quarter level. Sourcing and Facility Division is composed of three major departments namely Sourcing, Supply chain and Facility & Fleet departments. The research is focus only on Sourcing and Supply Chain department because these departments are the key user of SCM module and most of supply chain activities undertaken by these departments. By focusing the system utilization of these departments in relation to procurement, warehousing and good shipment of SCM modules the reliability and flexibility of the system and the relationship among different members of supply chain and associated cost has been evaluated with regards to system integration, item standardization, reporting and support to end users.

The other scope of this research is that ethio telecom implemented various systems that directly or indirectly related with supply chain activities like CRM and Voucher Management system, but the researcher focus only on ERP system due to time constraint and reduce complexity the research that affect the research result. But, to minimize or avoid any effect of other system on this finding, the researcher tried to clear the research question and observation area.

1.8 ORGANIZATION OF THE RESEARCH

The paper has consists of five major chapters in which have sub topics under each chapters.

The first chapter includes background of the study, statement of the problem, research questions, and objective of the study, significance of the study, scope of the study, operational definitions, research design and methodology and organization of the paper. The second chapter focused on literature review which is related with the subject matter from different sources. The third chapter presented the research design and methodology part which includes mainly the research design, approach, data type, source, sample size, techniques and other related issue. The fourth chapter is a collection of data presentation and analysis resulting from the assessment made. The last and fifth chapter presented summary, conclusions and recommendations based on the facts found on the research. Finally, the lists of bibliography and sample of questionnaire attached as appendixes.

CHAPTER TWO

Review of Related Literature

2.1 Definition

Supply chain management is a network of entities that encompasses every effort involved in producing and delivering a final product, from the supplier's supplier to the customer's customer. A key principle is that all strategies, decisions, and measurements are made considering their effect on the entire supply chain, not just individual functions or organizations (Qingyu Zhang, 2007:18).

The focus of supply chain management should be on end-to-end effectiveness of the chain in order to achieve the main goal of that supply chain by participating all members with their full capabilities to achieve their strategic benefits from the supply chain.

2.2. Stages of SCM Development

The emergence of the SCM concept can be said to have occurred in five distinct stages: (David F.Ross, 2007:6).

- The first can be described as the era of *decentralized logistics management*. In this period, logistics functions were often segmented and attached to sales, production, and accounting departments.
- The second stage in the evolution of SCM can be said to have revolved around two critical focal points: *logistics centralization* and the application of the *total cost concept* to logistics.
- The third stage of SCM development can be said to revolve around *competition and quality management* in the 1980s.

- Stage 4 of the evolution of SCM began in the mid-1990s. Reacting to the acceleration of globalization, the increasing power of the customer, organizational reengineering, outsourcing, and the growing pervasiveness of information technologies, companies began to move beyond the integrated logistics paradigm to a broader and more integrated view of the chain of product and delivery suppliers.
- Today, SCM has progressed to Stage 5 in its development. Through the application of integrative information technologies like the Internet, SCM has evolved into a powerful strategy capable of generating digital sources of competitive value based on the real-time convergence of networks of suppliers and customers into collaborative supply chain systems.

Actualizing technology-integrated SCM is a three-step process. Companies begin first with the integration of supply channel facing functions within the enterprise through technology solutions like ERP. An example would be integrating sales and logistics so that the customer rather than departmental measurements would receive top attention. The next step would be to integrate across trading partners channel operations functions such as transportation, channel inventories, and forecasting. Finally, the highest level would be achieved by utilizing the power of technologies such as the Internet and e-business to synchronize the entire supply network into a single, scalable “virtual” enterprise capable of optimizing core competencies and resources from anywhere at any time in the supply chain to meet market opportunities. Earliest

Finally, the application of breakthrough information technologies has enabled companies to look at their supply chains as a revolutionary source of competitive advantage. Before the advent of integrative technologies, businesses used their supply chain partners to realize tactical advantages, such as linking logistics functions or leveraging a special competency. With the advent of integrative technologies, these tactical advantages have been dramatically enhanced with the addition of strategic capabilities that enable whole supply chains to create radically new regions of marketplace value virtually impossible in the past.

SCM is important because companies have come to recognize that their capacity to continuously reinvent competitive advantage depends less on internal capabilities and more on their ability to look *outward* to their networks of business partners in search of the resources to assemble the right blend of competencies that will resonate with their own organizations and core product and process strategies. Today, three major changes have enabled companies to actualize the power of supply chains to a degree impossible in the past. To begin with, today's technologies have enabled the convergence of SCM and computerized networking toolsets capable of linking all channel partners into a single trading community. Second, new SCM management concepts and practices have emerged that continually cross-fertilize technologies and their practical application. Finally, the requirements of operating in a global business environment have made working in supply chains a requirement. Simply, those companies that can master technology-enabled SCM are those businesses that are winning in today's highly competitive, global marketplace.

SCM provides companies with the ability to be both *responsive* (i.e., able to meet changes in customer needs for alternate delivery quantities, transport modes, returns, etc.) and *flexible* (i.e., able to manipulate productive assets, outsource, deploy dynamic pricing, promotions, etc.). SCM enables whole channel ecosystems to proactively reconfigure themselves in response to market events, such as introduction of a disruptive product or service, regulatory and environmental policies, financial uncertainty, and massive market restructuring, without compromising on operational efficiencies and customer service.

Successfully leveraging technology requires organizations, if not whole supply chains, to find answers to the following critical questions. What are the goals of information technology from the perspective of the business? What system technology components (hardware, software, peripherals, etc.) are necessary to realize information goals? What technology toolsets need to be implemented across the supply chain if channel partners are to be closely linked to form a virtual supply network? What are the trends in today's information technologies and how do they impact the supply chain? What are the methodologies and tasks necessary to create a sustainable supply chain information technology environment?

Based on these factors, SCM can be **redefined** as a strategic channel management philosophy composed of the continuous regeneration of networks of businesses integrated together through information technologies and empowered to execute superlative, customer-winning value at the lowest cost through the digital, real-time synchronization of products and services, vital marketplace information, and logistics delivery capabilities with demand priorities.

Poirier and Bauer (2000) highlight three constituents in the preparation and execution of e-SCM:

- ✚ **E-network:** Business networks should satisfy customer demands through a seamless (fully connected end-to-end) supply chain to serve the end consumer (see also Towill, 1997).
- ✚ **Responses:** Customer responses from the central theme of the supply chain strategy. The market value of the supply chain can be dramatically enhanced by jointly creating profitable revenue growth through integrated inter-enterprise solutions and responses.
- ✚ **Technology:** Each of the above constituents can achieve the purposes and goal of the supply chain by being supported with leading-edge technology, particularly ecommerce. The three constituent's e-network, customer responses, and technology could be seen as the "input" into e-SCM working together to achieve the ultimate aim (output) of the supply chain that is, customer satisfaction. (David Frederick Ross, 2011:72).

2.3. Critical Success Factors

The following are critical success factors for the implementation of ERP as mostly cited in literature by various scholars

- ✚ Selection of a right full time project manager with extensive experience
- ✚ Reporting level of the Project Manager
- ✚ Quality (adequacy) and quantity of training and education of personnel/users
- ✚ Role and effectiveness of management in reducing the users' resistance

- ✚ Integration of Business Planning with ERP planning
- ✚ Use and role of Consultant
- ✚ Top management support/ involvement
- ✚ Change management strategy and programs
- ✚ Competency in use of IT and IT infrastructure
- ✚ Clearly specified goals/objectives/scope
- ✚ Business Process Re-engineering/Customization)
- ✚ Involvement of organizational members/users in adoption and implementation of ERP
- ✚ Ease of system's use and users' acceptance
- ✚ Vendor's support
- ✚ Project management and effective communication

After realizing advantages of intra- and inter-organizational integration as well as for the sustainable competitiveness in today's rapidly changing global marketplace, many organizations worldwide irrespective of their size and scope have implemented or are in the process of implementing Enterprise Resource Planning systems. ERP system is actually a strategic tool that may help an organization to gain an edge in successfully integrating key business operations as well as properly planning, synchronization and optimization of the available resources in the marketplace better than the competitors.

2.4. Internal Integration between Business Functions

In this phase of integration, organizations must focus on ensuring internal integration among their functional areas. Enterprise resource planning (ERP) systems are integrated business transaction processing and reporting systems that many companies have implemented in recent years. ERP software applications support the re-engineering of business processes and form the foundation for an integrated organizational value system. A basic definition of ERP is a system that tracks transactions that, in turn, trigger business processes involving organizational resources (people, materials, and technology).

Understanding the resources consumed allows an organization to leverage these resources more productively and, in theory, achieve a competitive advantage. ERP systems serve as the organization's "backbone," providing fundamental decision-making support. ERP systems add a "process logic" to an organizational information system and create a fundamental discipline in business processes. In the past, managers in one functional area often made decisions independent of other functional areas but ERP systems provide decision-makers with a unified view of the organization and effectively force people to interact in a single system, even if they would prefer not to!

ERP systems help integrate the areas of customer order management, manufacturing planning and execution, purchasing, and financial management and accounting. ERP systems enable people in these very different parts of the business to communicate and share information with one another. The new ERP holds the promise of being able to effectively link the organization's functions and key business processes together. ERP systems are integrated business transaction processing and reporting systems designed to look at business transactions from a process rather than a functional view.

A Process Model SCM for Value System Creation were first developed, ERP systems held the promise of being able to sit "on top" of legacy systems, or alternatively, data from legacy systems were migrated over to ERP databases. Extracting data from the legacy systems and making it available in a desired format to all people in all functional areas increased visibility to transactional data throughout the business.

The problem of disparate systems being used by different functional groups and business units is an on-going problem. One company we worked with comes immediately to mind. As with many organizations, this company had grown through acquisitions, and had many global locations with disparate software systems, databases, and decentralized buying activities. The company may have had the same supplier supplying different locations, yet was unable to leverage these purchases owing to a lack of data. An important step for this company would be to "scrub" its data, and apply data warehouses to consolidate purchase data to enable better coordination between the units.

This should lead to an optimization of the supply base considering the total cost of supplying key commodities to different locations using a combination of local and international suppliers. Similarly, this company's distribution network should be configured to optimize inventories, spare parts, commonality in product designs, and improved coordination between sales and distribution units within the global organization.

2.5. Collaboration with Suppliers and Customers

In the next stage of evolution, a company must change the nature of its alignment and collaboration not only with first-tier customers and suppliers, but throughout its supply chain. In the future, the best supply chains will win and managers must be aware of the actions and requirements for critical customers and suppliers in the network. Accessing this information is difficult unless the scope and nature of relationships with key supply chain member organizations is established and maintained. This is not to say that every relationship should (or can) be a "long-term strategic alliance." However, the relative importance of the supplier/customer on value and overall supply chain performance should be determined. This assessment should be a primary determinate of the type of organizational relationship that should be pursued for the organization in question. This means that one should have a basic understanding of the performance metrics for the key supply chain member, based on technology, potential for growth, and profitability. It means that the performance of key suppliers in terms of quality, delivery, and technology should be described in financial terms that directly relate bottom-line impact. It also means that key supply chain partners should be aligned with your organization's internal strategies in order to exploit their expertise and knowledge in creating value.

Finally, collaborative sharing of forecasting and demand information can better help plan long-term capacity, inventory, and human resource requirements. In the above part, in detail the financial realities of supply chains, and address how companies can discover the financial "sweet spot" within their supply chain to produce the highest returns given their intellectual and physical assets and discussed the core processes required to create and manage critical supply chain relationships, by developing trust between individuals and organizations, and creating the basis for agreement on sharing information via collaborative means. Until such fundamental issues as

trust and information sharing are resolved with key suppliers and customers, no B2B technology is likely to ever have any significant impact on business processes.

Once these stepping-stones have been put in place, a number of opportunities arise for creating greater value. One of these is in the collaborative design and development of new products in the supply chain. The reality in many markets today is that 40 percent or more of revenues are from new products introduced in the previous year. Thus, unless supply chain members can create a continuous stream of fresh and innovative technologies and products, customers take their business elsewhere.

In addition to creating new products, collaboration between supply chain participants also affects another critical element in the value equation: cost. Cost management again involves taking a supply chain-wide perspective on costs and working in a collaborative manner with supply chain partners to reduce costs without damaging required profits and rates of returns for key stakeholders in the supply chain. By working collaboratively, supply chain members can reduce costs of doing business, providing a means to improve profitability and/or to pass on the savings to end customers, and benefit from higher market share. Here again, we believe that collaborative activities between supply chain members in assessing core competencies, developing new products, Supply Chain Redesign (Robert B. Handfield and Ernest L. Nichols, Jr. 2007)

2.6. Establishing Contacts across the Supply Chain

External supply chain workshops provide participants with an opportunity to become acquainted with key personnel from other supply chain member organizations. Establishing this network within the supply chain provides organizations with “real person” contacts within the other organizations. These contacts can be extremely valuable when organizations are presented with future supply chain problems (or opportunities). Supply chains that include an established network will be better positioned to respond to these situations than their counterparts who do not have these contacts.

2.7. Gaining Insights into Current Organizational Practices

Simply giving organizations a forum in which to discuss their current practices with the entire supply chain membership is very productive. These sessions often lead to the discovery of problems as well as the identification of potential remedies to correct these problems. Understanding and Improving Supply Chains a key component from its supplier considerably later than necessary. The buying organization knew its order requirements for the component after the completion of an intermediate stage in the production process. However, the buying organization was not communicating this requirement to its supplier until the production process was completed. In another case, a supplier measured its customer order fulfillment performance on the basis of the time period from placement of the customer's order through order shipment. According to this measure, the supplier believed it was doing a "good" job. However, this organization's customer did not share this view. The customer measured order-fulfillment performance from its order placement through order receipt. On the basis of this measure, the supplying organization was late approximately 75 percent of the time. Further investigation revealed that 60 percent of the time that orders were late the problems were shipping-related. Prior to discussing this situation with its customer, the supplying organization was not even aware that there was a problem.

2.8. Joint Projects between Supply Chain Members

Often, opportunities for joint projects between "subgroups" of the supply chain organizations are identified and projects initiated during the workshop sessions. Although these projects do not focus on the entire supply chain, they often address issues that improve overall supply chain performance. For example, in one project in which the authors participated, an internal consulting group within one organization conducted detailed studies of the linkages between its organization and the organizations adjacent to it in the supply chain—that is, its supplier and its customer. This approach helped identify the level of process variability and its causes. Once the sources of variability were identified, the organization made efforts to remove the root causes of variability or to determine the appropriate location and quantity of inventory required to protect against this uncertainty. In another project, the two organizations that discovered the order-

fulfillment problem discussed in the preceding section established a joint project team to address this problem.

2.9. Benefits of Inter organizational Supply Chain Collaboration

In order to accurately assess the performance of an existing supply chain and its related processes, one must have objective performance information. Ideally, this information should cover the full range of performance areas, including, but not limited to:

- Products and services offered Delivery
- Sales Cycle times
- Market share Assets utilized
- Cost Responsiveness
- Quality Customer service
- Inventory holdings

Developing and maintaining a supply chain performance measurement system represents one of the more significant challenges faced in SCM initiatives. However, if supply chains are to be improved, decisions need to be based on objective performance information and will require sharing of this type of information with key supply chain members. Organizational willingness to share information with other supply chain members is a critical selection criterion for SCM membership. An organization that is willing to receive information from other supply chain members but is reluctant to share information is a poor candidate for inclusion in an SCM initiative.

External supply chain workshop participants indicate that a number of benefits are associated with these sessions in addition to documenting existing supply chain processes.

Specific benefits include:

- Establishing valuable contacts across the supply chain;

- Gaining insights into current organizational practices; and identifying opportunities for joint projects among supply chain members.

2.10. Role of Benchmarking

Benchmarking analysis has been shown to be an effective means of determining the supply chain's performance relative to those of other organizations. Cook (1995) defines benchmarking as "the process of identifying, understanding, and adapting outstanding practices from within the same organization or from other businesses to help improve performance. This involves a process of comparing practices and procedures to those of the 'best' to identify ways in which an organization (or organizations) can make improvements. Thus new standards and goals can be set which, in turn, will help better satisfy the customer's requirements for quality, cost, product and service."

The steps typically found in the benchmarking process include:

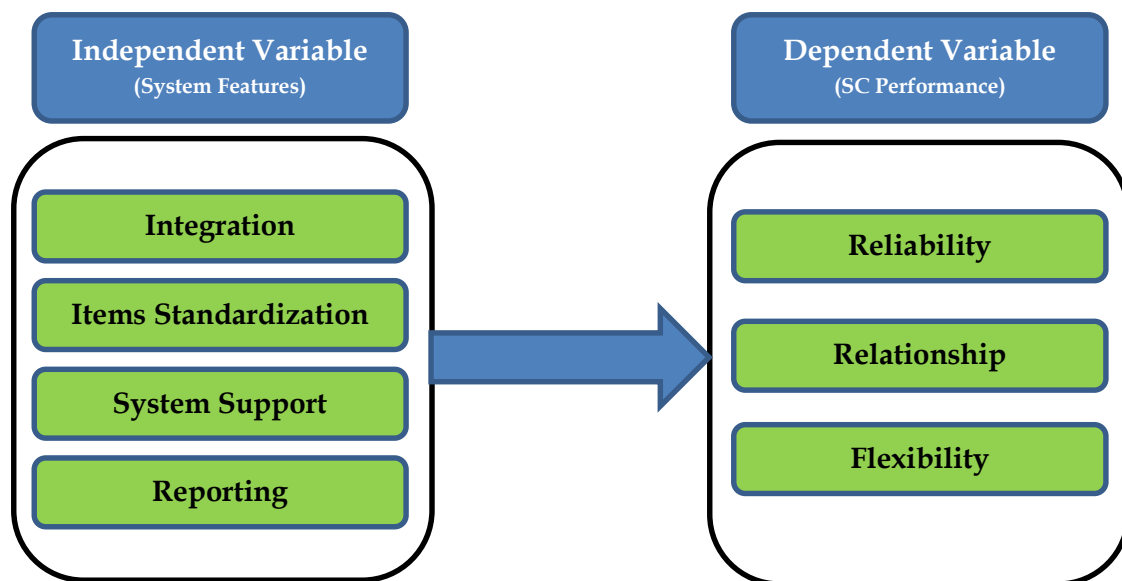
1. Identify and understand current processes.
2. Form a benchmarking team.
3. Determine what to benchmark.
4. Identify benchmarking partners.
5. Collect data.
6. Analyze data and identify performance gaps.
7. Take actions to improve.
8. Review results.

Benchmarking provides a means to focus the supply chain management efforts on those areas most in need of improvement. One of these areas that spans multiple areas of the supply chain is process cycle time. (Robert B. Hand field and Ernest L. Nichols, Jr. 2007).

2.11. Conceptual Framework

System technology implementation has focus on the proper operation of different system integration, item standardization, system support and reporting to have better system supported SCM practices like ERP. The strategic and better management of those activities will enable better utilization and implementation of systems to support and manage the supply chain effectively. Having the understanding of the basic concept, the conceptual framework of the research is presented as below:

Figure 1.1: Conceptual framework



(Source: this model is adapted and modified from Geraldie (2013), Kwateng et al. (2014), Mackinnon (1991), Kotler and Armstrong (2005), Agrawal (2007), Lambert et al. (1998))

CHAPTER THREE

Research Methodology

3.1. Research Design

Research design refers to a set of methods and procedures that describes research variables. Research can be classified as descriptive, explanatory and predictive research (Saunders, Lewis and Thornhill, 2007). This research has been done using the descriptive and explanatory type of research since it attempts to assess and describe practice of ethio telecom ERP system utilization as well as see the relationship of system feature and supply chain performance. Adams et al. 2007 explain the three classification of research is that explanatory research is describe the phenomena as well as explain why behavior is the way it is; descriptive research is used to simply describing the phenomena; and predictive research is an attempt not only to explain behavior but to predict future behavior given a change in any of the explanatory variables relevant to a particular phenomenon. This research is focused and emphasis on assessing the system technology utilization for integrated and holistic SCM and see relationship system feature and supply chain performance. Among different sub-types of descriptive research methods of studies the student researcher applied correlational studies to determine whether the variables under the study have some kind of association or not.

3.1. Research Approach

Researchers applied two types of research approaches, namely qualitative and quantitative approach (Saunders et.al, 2007). Most researchers argued that the best method to use for a study depends on the purpose of the research, researcher data and the accompanying research questions. In this regard, the purpose of this research was to assess the system technology utilization for integrated and holistic SCM and see relationship system feature and supply chain performance. The researcher has collected quantitative data through self-developed questions as well as qualitative data through interview. Questions is designed to be understood and interpreted the same way by all respondents; having this the researcher tried to avoid ambiguous

terms from the questionnaires and make self-understood questions through scrutinizing by advisor, expertise and pilot test. Moreover, primary qualitative data also collected using the semi-structured interview. The questionnaire also included open-ended questions.

3.2. Data Type and Source of Data

There are two types of data, namely primary and secondary data. Researcher used either both or one of the types of data depends on the research type and data collect by researcher (Saunders et.al, 2007). For this research purpose primary data collected through standardize questionnaire. Primary data are originated by a researcher for the specific purpose of addressing the problem at hand (Malhotra and Birks, 2006).

Researcher is used secondary data from journals, company publication and other publicized documents. According to Adams et al. (2007) secondary data is data collected by someone else and there is a great deal available to researcher from books, libraries and on the web. This data also might be serving as reference and guide the focus of clarify research question.

3.3. Data Collection Method and Time Horizon

There are different ways of data collection methods depends of the type of data and research method, among others the two basic methods by which the researcher used to collect data, which are questionnaire and interview check list. The questionnaire was distributed to the representative of employees. The interview check list is used to collect response from section managers in two departments. The primary data obtained from distributed questionnaire and interviewed to selected managers respectively in two departments. Primary data is collected from managers after analysis of questionnaires data for further clarification and see in detail the response and result of survey. The secondary data gathered from different texts, books, related written with the subject matter, appropriate data from ethio telecom, related researches conducted before, from Internet and other sources. The questionnaire is designed mixing of close-ended and rating questions most frequently use five levels Likert-style rating scale (Saunders et.al, 2007).

3.4. Sample size, Technique and Procedure

The researcher adopted the six sampling steps of Malhotra et al., (2006), these steps are closely interrelated and relevant to all aspects of the market research. Those are - identified target population, determine the sampling frame, select sampling techniques, determine the sample size, execute the sampling process and validate the sample.

Sampling is the process or technique of selecting a suitable sample for the purpose of determining parameters or characteristics of the whole population (Adams et al., 2007).

3.4.1. Target Population

This research study included as a target population that employee of Sourcing and Supply Chain department located at corporate level including the management team in both departments. The total number of employees in Sourcing and Supply Chain department is 182 based on company profile Dec 2015. Therefore the population of this research was 182 staffs that working in Sourcing and Supply Chain department and actively working on ERP system. Although, the researcher focused on corporate level staffs due to time and financial constraints, the result of the research don't impacted since the respondents are working on same environment and they have homogenous nature.

3.1.1. Sample size

Determining sample size varies for various types of research designs and there are several approaches in practice. A general rule, one can say that the sample must be of an optimum size i.e., it should neither be excessively large nor too small (Kothari, 2004).

The researcher has taken Zikmund and Babin (2010) sampling technique by determining the sample proportion success and not success based on the experience from previous survey research response rate. Saunders, Lewis and Thornhill (2012) state that the likely response rate shall be reasonable 50% or moderately high, while Patrick (2003) referring Babie (1979), the return or success rate 50% is 'adequate'; 60% response rate is 'good' and 70% rate or higher is 'very good'. Having this experience, for this research purpose confidence of successfully collect

or return rate is expected to 90% because the respondents are located on specific area and easy to collect questionnaires and the remaining might be defected or non-response, and sample size is determined at 95% confidence level.

Determine the size of the sample size for population (Kothari, 2004):

$$n = \frac{z^2 \cdot p \cdot q \cdot N}{e^2 (N - 1) + z^2 \cdot p \cdot q}$$

Where:

- z = z score level of confidence of the estimate (in the case of 95% = 1.96);
- e = marginal error, 5%
- P = proportion of the sample successfully collected ($p=0.9$)
- q = failure of sample ($1-0.9= 0.1$)
- N = population of the sample (182)

$$n = \frac{1.96^2 * 0.9 * 0.1 * 185}{0.05^2 (182 - 1) + 1.96^2 * 0.9 * 0.1}$$

$$n = 78$$

Therefore, based on the above given information and sample size formula, the sample size for this study was 78.

3.1.2. Respondent selection

3.1.2.1. Employees

The researcher used probability sampling approach, specifically simple random sampling technique in order to select employee included in this research study. It is possible to use the technique mentioned above when the complete list of all members of the population is available

or when the population could be listed accurately and is finite. Simple random probability sampling technique is used to select staffs who are working at Sourcing and Supply Chain department at corporate level. Hence, questionnaires are randomly distributed to employees.

3.1.2.2. Managers

In order to select managers, the researcher used non-probability sampling (Saunders et.al, 2007). Non-probability sampling technique which is judgmental sampling to select managers who are working on Sourcing and Supply Chain activities since they are less in number and have good work experience in the area. Therefore, all section managers in both departments that are working at corporate level included in this study.

Number of staffs and Sample ratio for the sample frame:

Respondent	Sourcing	Supply Chain	Total Staff	Corporate Staff	Sample Proportion
Employee	78	104	182	85	78

Table 3.1. Number of staff sample ratio

Source: number of staffs obtained from ethio telecom.

3.5. Research Variable

There are different type of variable depends on the type of research and data analysis. For this study purpose, researcher designed dependent and independent variable. According to Neuman (2007), the variable that is the effect or is the result or outcome of another variable is the dependent variable. The independent variable is the causes of result, whereas the dependent variable “depends on” the cause. For this research, system features are independent variables and SC performance is dependent variables. The system features is consists of integration, item

standardization, system support and reporting has been categorized as independent variable and reliability, relationship, and flexibility are parameters of dependent variables.

3.6. Ethical Consideration

Each discipline should have its own ethical guidelines regarding the treatment of human research participants (Vanderstoep and Johnston, 2009). Research ethics deals with how we treat those who participate in our studies and how we handle the data after collected. The researcher is keep privacy (i.e leave any personal questions), anonymity (i.e protecting the identity of specific individual from being known) and confidentiality (i.e keeps the information in secret) (Saunders et.al, 2007). Besides, the questionnaire is distributed to voluntary participant, it also have clear introductory and instruction part regarding to the purpose of the research.

3.7. Validity and Reliability

The reliabilities of system features on enhanced SC performance was assessed with Cronbach's Alpha (α), it is the most common measure of scale reliability (Field, 2006). According to Neuman (2007), Cronbach's Alpha used to assess uni-dimensionality. Alpha ranges from a maximum of 1.0 for a perfect score to minimum of zero, good measure of the alpha should be 0.70 or higher. The researcher measures the reliability of the data using Cronbach's Alpha, detail seen in the analysis part of the study.

Multiple indicators of a variable is used to increasing reliability, two or more of indicators of the same construct are better than one (Neuman, 2007). The researcher is used at least three to seven well design and theoretically constructed indicators at each of dependent and independent variables.

Statistical validity also used to measure the validity of the research though use of correct statistical procedure and instruments (Neuman, 2007). To insure the statistical validity of the study, the researcher has collected quantitative data using questioner and analyze the data using

correct statistical instruments like descriptive statistics and correlation analysis to see the relationship of those variable and reach concrete conclusion.

According to Adams et al., (2007) internal validity is used to assure the research validity. To threat the internal validity of this research, questioners are distributed within same period of time and collect within three weeks, and reasonable sample is taken from the population and questionnaires randomly distributed to participant.

In addition to this, the researcher received comment from the advisor and other expertise on the questionnaire and overall research methodology. Furthermore, pilot taste has been made by distribute small questionnaire. The major objective of the pilot taste was to get feedback on the questionnaire way of preparation, wording, coherence and any other valuable comment and to in incorporate any important comments and finalize the questionnaire.

3.8. Data Analysis

Descriptive statistic is used to describe the data collect in research study and to accurately characterize the variables and to summarize a study sample. Correlation analysis is used to examine the relationships of the dependent variable and the independent variables.

In addition to this, the researcher was also concerned with the interpretation and the representation of justification by modeling the relationship between ERP and SCM due to the ordinal nature of the data employed in the study. The information gathered through interview has narrated.

Questionnaires has been checked for completeness and errors also corrected or omitted. Responses from the target study of the subject categorized using the nominal scales according to their response categories. The result then analyzed and reported in different format by using the relational methods which can show explicitly the significance role of SCM to the overall organizational performance. Finally, the result tested by comparing and contrasting with the literature and theories.

CHAPTER FOUR

Data Presentation, Analysis and Interpretation

The purpose of this research is to investigate the impact of system features on system performance. This chapter presents the main part of the study. Collected data using quantitative method was tabulated and analyzed using explanatory descriptive and correlation analysis statistical tools. In addition the qualitative data collected through structure interview will be narrated in every aspects of the information gathered from distributed questionnaire

4.1. Reliability Test

In order to conduct this research a total of 78 questionnaires were distributed for two department employees, and 74 questionnaires are collected, and the remaining 4 questionnaires was not returned and from the returned questionnaire 3 of them was not properly filled and excluded from the analysis by the researcher, and hence the analysis has been done on 71 questionnaires. Although, 95% of response is collected from the expected sample, the analysis was done on the 91% of response rate since there was some responses was excluded due to incompleteness.

Reliability refers to the extent to which data collection techniques or analysis procedures yield consistent findings (Saunders et al., 2007). Dunn (2001) also defines reliability as a measure's stability or consistency across time. Before going to data presentation, analysis and interpretation; the data reliability test is measured by using Cronbach's Alpha. Cronbach's Alpha was also calculated as part of the reliability test to assess how valid the results were and should produce similar generalized results if the sample size were increase (Field, 2006).

S. No	Variables	Cronbach's Alpha Value	Number of Questions
1	Integration	.752	5
2	Item standardization	.705	5
3	System support	.714	3
4	Report	.722	4
5	Reliability	.729	7
6	Relationship	.726	5
7	Flexibility	.732	5

Table 4.1: Cronbach Alpha value of individual and group variable

The Alpha value is ranges from a maximum of 1.0 for a perfect score to minimum of zero, good measure of the alpha should be 0.70 or higher (Neuman, 2007). Accordingly, the Cronbach's Alpha values of the survey indicate good reliability and the result are presented in table 4.1.

The Cronbach's Alpha value of individual variables is a minimum is 0.705 to maximum value of 0.752. Therefore, the researcher concluded that the data has internal consistency and reliable for further analysis.

4.2. Descriptive Statistics

4.2.1. Respondents Working Department

The questionnaires were distributed to employee respondents that are working at Sourcing department and Supply chain departments, those are major user of ERP for supply chain management module on ERP system for their day-to-day operational activities. The following tables present the number of respondents from each work unit.

Working Department	Frequency	Percent
Sourcing Department	32	45
Supply Chain Department	39	55
Total	71	100

Table 4.2: Respondent work department

The research participants were from two departments which are Sourcing department and Supply Chain department. From the total valid respondent 45 % of them are from Sourcing and the remaining 55 % of respondents are from supply chain. The percentage share is shown almost nearest proportion from the two departments.

4.2.2. Service Year

The following tables present the number of respondents work experience on both department employees. This information is very important to see the respondent experience in the field and to build confidence on the collected data.

Service Year	Frequency	Percent
Two years and below	13	18
Three to Six years	27	38
Seven years and above	31	44
Total	71	100

Table 4.3: Respondent experience

On service years of experience in the Sourcing and Supply Chain departments 18% of the employee respondents have two and below years of experience, 38% and 44% of the respondents have a service year between three to six years and seven years and above work of experience, respectively and hence the information obtain from this group is more reliable since they have good know-how and better experience about the system utilization on the supply chain module of ERP since the system implementation period and their service years is almost the same. In addition to that these, respondents categorize under seven years of working experience has reliable information and judgment to compare the system utilization and manual practices of supply chain management.

4.3. Correlation Analysis

The correlation of the variable is measured by Pearson correlation coefficient. The result of the Pearson correlation is presented on following tables and interpreted by the guide line suggested by Field (2005), he mentioned that the Pearson correlation coefficient is shown the relationship and direction between the predictor and outcome variable. And, there relationship is measured in the range of 0.1 to 0.29 is weak relationship, 0.30 to 0.49 is moderate, above 0.50 shows strong relationship; while the positive and negative sign is tell us the direction of their relationship.

		Integration	Item Standardization	System Support	Report
Reliability	Pearson Correlation	.731**	.724**	.538**	.721**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	71	71	71	71
Relationship	Pearson Correlation	.710**	.694**	.516**	.701**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	71	71	71	71
Flexibility	Pearson Correlation	.768**	.695**	.591**	.754**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	71	71	71	71

Table 4.4: correlation between independent and dependent variables

The above correlation table shows that the correlation relationship between independent variables (i.e integration, item standardization, system support and report) and dependent variables (i.e reliability, relationship, and flexibility). Accordingly:

- Reliability has strong positive correlation with integration, item standardization, system support and report at Pearson correlation (r) value of .731, .724, .721, and .538 respectively at descending order. Hence, all of system features have strong positive correlation with system reliability. This indicates that the improvement on the system features will increase the efficiency of system reliability.
- Relationship has strong positive correlation value r is .710, .701, .694, and .516 integration, item standardization, system support and report respectively at descending order. This shows that enhancing the performance of the system features have a positive impact to improve the relationship among supply chain members.

- Flexibility has strong positive correlation with integration, item standardization, system support and report at Pearson correlation (r) value of .768, .754, .695 and .591 respectively at descending order. As a result can conclude that improving the dimensions of system features have strong positive impact on enhancing system flexibility performance.

All of system features have strong positive correlation with supply chain performance, except system support to all system performance variables. Therefore, it can conclude that there is positive and significant correlation between system features and enhanced system performance.

4.4. Data Analysis on distributed questionnaire

The researcher analyzed the data gathered through close ended questionnaires with the aid of statistical tools which both inferential and descriptive statistics. In addition to this, the researcher was also concerned with the interpretation and the representation of justification by modeling the relationship between ERP and SCM due to the ordinal nature of the data employed in the study. The information gathered through interview has been narrated. Both qualitative and quantitative methods have been used to analyze the data under study.

Key for Likert style rating scale

Ratings				
1	2	3	4	5
Very Low	Low	Medium	High	Very High
Or				
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4.4.1. Analysis of questions related to Integration

The response of respondents from the distributed questionnaire related to system **Integration** impact on the supply chain performance presented on the table below:-

Integration	Number & Percent of respondents											
	1		2		3		4		5		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
How do you rate the internal end-to-end integration of the SCM module on ERP?	32	45	22	31	6	8	6	8	5	7	71	100

In the above table the researcher tried to summarize the response of employees regards to end-to-end system integration. Based on their response 47% and 31% of respondents has rated strongly disagree and disagree respectively. In addition 8%, 8% and 6% of respondents' rate neutral, agree and strongly agree. This indicates that the end-to-end system integration of supply chain management on ERP has not implemented at satisfactory level based on employees' perspectives as a result the performance of supply chain management also impacted.

In addition to the employee response presented above the information gathered from section managers of both departments also validated that the end-to-end system integration of the SCM module on ERP was not satisfactory and it affects the day to day activities of both departments related to supply chain management.

Integration	Number & Percent of respondents											
	1		2		3		4		5		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
How do you rate the integration of ERP-SCM module with suppliers, vendors, service providers?	33	46	20	28	4	6	7	10	7	10	71	100

The summary of responses of employees on the integration ERP-SCM module with supplier, vendors and service presented in the above table. Accordingly 48% of respondents replied strongly disagree and 27% of respondents has rated disagree. In addition 5%, 10% and 10% of respondents' rate neutral, agree and strongly agree. This indicates that the integration of the supply chain management on ERP has not yet implemented as expected with vendor, supplier, service provider and other stakeholders. Since, the impact of system integration will affect the performance of SCM performance of the company accordingly the less integration the lower performance on the supply chain.

Managers also agreed that the supply chain module on the system has been limited on some scope which didn't incorporate suppliers, vendors and other stakeholders out of the organization has been forced them to proceed other supply chain activities with the abovementioned partners manually, as a result it affects the overall performance of the supply chain of the company.

Integration	Number & Percent of respondents											
	1		2		3		4		5		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
What is the extent of SCM module integration with other SC systems?	26	37	21	30	4	6	10	14	10	14	71	100

In the above table the researcher tried to summarize the response of employees regards to SCM module integration with other systems which is related to the supply chain activities. Thus, 37% and 29% of respondents has rated very low and low respectively, in addition 5%, 18% and 5% of respondents rate neutral, high and very high. This implies that the integration level of SC module with other supply chain activities module in the system didn't implemented as per the employee

expectation and this will affect their day-to-day activities on the supply chain management and also the performance of the supply chain.

Regards to SCM module integration with other SC system managers also replied that the performance of the supply chain has impacted due to limited integration of the overall SCM module.

Integration	Number & Percent of respondents											
	1		2		3		4		5		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
Do you agree that system users' participation during implementation was effectively successful?	22	31	27	38	7	10	7	10	8	11	71	100

The above table summarizes the response of employees on participation of users during system implementation was successful or not. Therefore, the summary of employee respond shows that 31% and 39% of respondents has rated strongly disagree and disagree respectively on employee participation during the implementation. Moreover 10%, 10% and 11% of respondents' rate neutral, agree and strongly agree. From the responses we can conclude that the participation of users during system implementation was very low or unsuccessful and as a result this affects the performance of the supply chain management.

As per the information collected from managers, they also agreed that the successfulness of any system implementation has impacted by the user participation during deployment since users have better perspective more than everyone participated in the implementation and it also help to figure out every aspects of the system deliverables.

Integration	Number & Percent of respondents											
	1		2		3		4		5		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
How much is the impact of frequent request of new requirements to integrate with the existing system?	13	18	10	14	5	7	23	32	20	28	71	100

The response of employees on the comparison between the impacts of frequent request of new requirements to integrate with the existing system against to the performance of supply chain has summarized in the above table. Most of employees which almost take 59% share of the respondents highly agreed that frequent change on requirement has a huge impact on the performance of the supply chain. The remaining respondent rate the range between neutral and very low. This implies that frequent change on the system has been a great challenge of system utilization for effective supply chain management through technology.

Managers also boldly raise this issue as frequent change implementation on the system affects the smooth operation of the system and this leads to back manual operation for urgent tasks happened during change period. This also led them for additional task while updating the status on the system when it becomes back to operation.

4.4.2. Analysis of questions related to Item standardization

The response of respondents from the distributed questionnaire related to **Item Standardization** impact on the supply chain performance will present on the table below:-

Item standardization	Number & Percent of respondents											
	1		2		3		4		5		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
How do you rate the impact of item standardization on SCM?	6	8	10	14	6	8	25	35	24	34	71	100

As clearly summarized in the above table the impact of item standardization on supply chain management performance was examined by employees participated on the distributed questionnaire and their response was 34% and 35% of respondent rated very high and high and the remaining 7%, 20%, and 9% was rated neutral, low and very low respectively. The summarized response implies that item standardization is one of the major activities to be done to enhance the performance of supply chain management by every members of the supply chain.

Item standardization supports the supply chain to have the same language for specific product on every level of the supply chain members and also helps for better warehousing, inventory management and stock level identification. In addition from every part of the organization with the same item code every sourcing & SC activities can be managed easily, and finally it avoids description duplication for the single item as per the information gathered from managers who has been participated on the interview for this study.

Item standardization	Number & Percent of respondents											
	1		2		3		4		5		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
Do you agree that there is responsible entity for item standardization in the company?	20	28	26	37	7	10	8	11	10	14	71	100

As part of the study the presence of specific entity for item standardization in ethio telecom was assessed to evaluate its impact against supply chain performance. The response result showed that 27% and 37% of respondents replied that they strongly disagree and disagree since there is no such kind of entity in the organization who is accountable for item standardization and its benefit narrated on the above analysis. The remaining 10%, 11%, and 15% of the employees replied that neutral, agree and strongly agree on the issue. As a result we can conclude that item standardization has to be taken as a major activity for supply chain performance and there should be an accountable entity for this activity in the organization.

Managers also agreed that there is no specific job owner for this item standardization task in the division but currently the management believes that it is mandatory to have such entity for effective and efficient supply chain management.

Item standardization	Number & Percent of respondents											
	1		2		3		4		5		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
Item standardization minimizes duplication of codes and descriptions for the same item, do you agree?	8	11	10	14	0	0	21	30	32	45	71	100

In above table the researcher tried to summarize the response of employees Item standardization minimizes duplication of codes and descriptions for the same item. Based on their response 47% and 27% of respondents has rated strongly agree and agree respectively, in addition 0%, 14% and 11% of respondents rate neutral, disagree and strongly disagree. This indicates that proper item standardization has an impact on supply chain management performance.

The management group also have the same perception with the employee response as item standardization minimizes duplication of item codes and will led the organization to standardized SC management.

Item standardization	Number & Percent of respondents											
	1		2		3		4		5		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
Do you agree that there is clear policy and procedure to standardize items on the system?	19	27	26	37	4	6	9	13	13	18	71	100

Among employee participant respondents 26% and 37% of them has been replied that their strong disagreement and disagreement on the availability of clear police and procedure for item standardization respectively. The remaining 5%, 13%, and 19% of respondent rate that neutral, agree and strongly agree. This indicates that setting of clear policy for item standardization is mandatory to enhance the overall supply chain performance.

Regards to having clear policy and procedures on item creation, managers also agreed that the organization didn't put clear policy to manage this task efficiently that is why different item code have been happened for the specific device or product in the same company but created in different locations.

Item standardization	Number & Percent of respondents											
	1		2		3		4		5		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
How do you rate the impact of standardized item on supplier relation management?	8	11	11	15	6	8	26	37	20	28	71	100

The impact of standardized item on supplier relation management was assessed to examine its effect on the supplier relation management as it is the major factor for supply chain performance. Accordingly employee response is summarized as follows: 27% and 37% of respondents has rated strongly agree and agree respectively, in addition 8%, 16% and 11% of respondents rate neutral, disagree and strongly disagree. This indicates that standardize items can enhance supply chain performance by promoting easily identification of items and communication among supply chain members.

Managers perception also aligned with employee responses since they have agree during the interview that item standardization is one of the major activity to build and sustain better supply chain management and relationship among the members of the supply chain.

4.4.3. Analysis of questions related to Report

The response of respondents from the distributed questionnaire related to **REPORT** impact on the supply chain performance will present on the table below:-

Report	Number & Percent of respondents											
	1		2		3		4		5		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
How do rate the extent of the system in providing real-time information on the day-to-day activities of the SC?	7	10	11	15	6	8	27	38	20	28	71	100

In above table the researcher tried to summarize the response of employees regards to report generation and providing real time information from the system to evaluate its importance against with supply chain performance on their day to day activities. Based on their response 27% and 39% of respondents has rated strongly agree and agree respectively, in addition 8%, 16% and 10% of respondents rate neutral, disagree and strongly disagree. This indicates that availability of report and real-time information has a positive impact on the supply chain management performance especially by availing adequate information & reporting and data as per the request in supporting the day to day activities of each actors of the supply chain members.

The availability of real-time information and status report generation from the system supports the day-to-day activities of managers to follow every status of their activities on real-time base and helped them to take appropriate action and informative decision on every activities under their supervision.

Report	Number & Percent of respondents											
	1		2		3		4		5		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
How do you rate the impact of report on stock control and procurement activities?	5	7	8	11	4	6	29	41	25	35	71	100

In above table the researcher tried to summarize the response of employees regard to the impact of report on stock control and procurement activities. Based on their response 35% and 42% of respondents has rated strongly agree and agree respectively that report has a positive impact on stock control and action measures on procurement activities, the remaining 5%, 11% and 6% of respondents rate neutral, disagree and strongly disagree. Therefore the availability of report regard to stock level and the status of each procurement activities has its positive impact for the enhancement of supply chain performance as a whole.

The availability of stock control information and status report generation on the system supports managers to follow every status of their activities on real-time base and helped them to take appropriate action on time as they gave response during interview with their group.

Report	Number & Percent of respondents											
	1		2		3		4		5		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
How do you rate the importance system/electronic reporting?	0	0	8	11	0	0	34	48	29	41	71	100

To gather information from employees on the importance of system or electronic reporting on supply chain performance was one of the major focus of the distributed questionnaire. As the result collected 42% and 50% of employee respondents has rated very high and high and the remaining 7% of respondents rated their disagreement on the importance of electronic reporting. This implies that almost all of respondent believe that system reporting has an impact on the supply chain performance.

As per the proportion of respondents almost all of them are replied that electronic reporting has great impact on the supply chain performance, among the employee under this questionnaire response participation there are participants have an exposure to compare and contrast the pros and cons of electronic reporting and the response rate show that the importance of electronic reporting is unnegotiable and manager also validate same response on this regards.

4.4.4. Analysis of questions related to System Support

The response of respondents from the distributed questionnaire related to **System Support** impact on the supply chain performance will present on the table below:-

System Support	Number & Percent of respondents											
	1		2		3		4		5		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
How do you rate the extent/value of system support?	4	6	7	10	6	8	27	38	27	38	71	100

The value or importance of system support for users was the other main focus of this study and employee respond that the need for system support for their day-to-day activities is very high and high as they are rating 39% and 39% respectively. The remaining 8%, 10%, and 5% of

respondent was rated its importance as neutral, low and very low. Therefore, we can conclude from the response above availability of reliable support on the system enhance the smooth operation of the system as well as the performance of supply chain.

During the discussion made with managers on this issue they have also agreed that the availability of support on difficulties occurrence during operational activities is mandatory for their successful management of the supply chain activities. As clearly put on their response end users of the system have not expertise on every aspects of the system and hence they need immediate support from back office during the need arise.

System Support	Number & Percent of respondents											
	1		2		3		4		5		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
During system implementation knowledge transfer was properly performed, do you agree?	29	4	24	34	4	6	6	8	8	11	71	100

One of the major issue was assessed in this study was the knowledge transfer performed during system implementation since it has great impact on the smooth operation of the system once it becomes operational, the triggering point to assess this parameters was there was some observation which shows the inefficiency of end users as well as the team that give the support at the back office in different period of time.

As the response summary showed that 42% and 34% of the respondent doesn't believe that proper knowledge transfer performed as expected by replying their strong disagreement and disagreement respectively. The remaining respondents which have 32% in total almost agreed the knowledge transfer was good. Hence, this implies that knowledge transfer during the

implementation of supply chain management module on ERP system was not performed well, as a result it affects the performance of supply chain since the employee was dependent on requesting support to perform their day-to-day activities.

Managers also agreed that the knowledge transfer especially to the end user have not been delivered at the level of the system demand to manage the operation smoothly.

System Support	Number & Percent of respondents											
	1		2		3		4		5		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
Ethio professionals are capable enough to support any system related queries?	25	35	20	28	4	6	13	18	9	13	71	100

In the above table the researcher tried to summarize the response of employees related to ethio telecom professional capabilities on giving system support to facilitate supply chain activities on the system. Based on their response 35% and 26% of respondents has rated strongly disagree and disagree respectively, in addition 5%, 19% and 15% of respondents rate neutral, agree and strongly agree. This indicates that the capability of ethio professionals was not dependable to manage the supply chain activities on the system and it has also impact on the supply chain performance as a whole.

Managers also agreed that the knowledge transfer implementation was poor and the training given for the back office support team was not as expected and hence the result is observed during system support inefficiency happening.

System Support	Number & Percent of respondents											
	1		2		3		4		5		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
System support is dependent of the vendor, do you agree?	5	7	9	13	4	6	30	42	23	32	71	100

The other major factor was evaluated in this study was the vendor dependency for system support. The response summary showed that almost 73% of employee respondent agreed that system support was not vendor independent starting from the system gets operational. The remaining 21% was replied that they disagree on the issue and the remaining 6% was kept neutral to respond in this issue. This implies that the system support has been vendor dependent and it has great impact on the supply chain performance as it was difficult to get real-time support as needed.

The final comment gathered from section manager of both departments also aligned with the employee response, hence system support was very much dependent of vendor and it affects the day to day activities of the supply chain since the requested support has not been resolved the soonest possible.

In order to summarize the findings of the study it has been cross checked with theoretical aspects. SCM provides companies with the ability to be both **responsive** (i.e., able to meet changes in customer needs for alternate delivery quantities, transport modes, returns, etc.) and **flexible** (i.e., able to manipulate productive assets, outsource, deploy dynamic pricing, promotions, etc.). In order to achieve this responsiveness and flexibility across the supply chain every company has to deploy technological utilization to enhance the performance of the supply chain activities. Based on the research study result ethio telecom should identified the major features of its supply chain management modules to become effective and efficient in both

flexibility and responsiveness, as a result it will achieve the enhanced supply chain with all stages of every activities.

In order to enhance the performance of an existing supply chain and its related processes, one must have objective performance information. Ideally, this information should cover the full range of performance areas, including, but not limited to flexibility, responsiveness, relationship, delivery, inventory management and so on. Accordingly this study tried to cover the performance KPIs against to the system feature on the deployed supply chain management system on ethio telecom ERP system. Different literature agreed that the implementation of system utilization across the supply chain will enhance the performance of the supply chain consequently. The research also validate that system features and supply chain performance have positive relationship.

A company must change the nature of its alignment and collaboration not only with first-tier customers and suppliers, but throughout its supply chain. In the future, the best supply chains will win and managers must be aware of the actions and requirements for critical customers and suppliers in the network. In order to enable the supply chain collaboration among the members the use of system across the supply chain becomes mandatory in the current supply chain management. The deployment of such system in the chain will create flexibility increase responsiveness and strengthen the relationship among partners. The study also conclude that the deployment of system among the supply chain will encourage and improve the collaboration among the members and as a result the performance of the supply chain management will become enhanced. Through building such kinds of relationship and collaboration among partners and members of the supply chain every company can create a “long-term strategic alliance.”

CHAPTER FIVE

Summary, Conclusion and Recommendation

This chapter presents the summary of research findings and conclusion drawn for the analysis as well as the recommendation based on the finding results.

5.1. Summary of Finding

This chapter presents the results of the data analysis. This study tries to see the relationship between system features and supply chain performance. Accordingly, the Pearson correlation coefficient(r) indicate that all predictor variables have a significant, $p < 0.01$, and have positive relationship with supply chain performance.

✚ Reliability has strong positive correlation with integration, item standardization, system support and report at Pearson correlation (r) value of .731, .724, .721, and .538 respectively. Relationship is the other variable that has been tested its correlation with the dependent variable and it has strong positive correlation value r is .710, .701, .694, and .516 integration, item standardization, system support and report respectively. The correlation of other system feature which is flexibility has strong positive correlation with integration, item standardization, system support and report at Pearson correlation (r) value of .768, .754, .695 and .591 respectively.

✚ Based on the reflection of both managers and employees respondents group end-to-end system integration of supply chain management on ERP has not implemented at as per

the technical compliance stated as preconditions. It refers to system integration with vendor, suppliers and service provider both respondents validated that the scope of ERP-SCM module deployment was limited internally and since the integrity level of the organization and abovementioned stakeholders are very limited the major activities in the supply chain outside the organization has been done manually. In addition the integration within the supply chain module itself hasn't been done as per the demand of the activity requires. The participation of users during system implementation was very low or unsuccessful and the frequent change on the system has been a great challenge of system utilization for effective supply chain management through technology usage.

✚ Item standardization is one of the major activity to be done to enhance the performance of supply chain management by every members of the supply chain. Item standardization supports the supply chain to have the same language for specific product on every level of the supply chain members and also helps for better warehousing, inventory management and stock level identification. In addition from every part of the organization with the same item code every sourcing & SC activities can be managed easily, and finally it avoids description duplication for the single item as per the information gathered from managers who has been participated on the interview for this study. Item standardization has not been taken as a major activity for supply chain performance and there was not accountable entity for this activity in the organization. To support item standardization in the supply chain and the organization setting of clear policy is mandatory. Standardize items can enhance supply chain performance by promoting easily identification of items and communication among supply chain members.

✚ Availability of report and real-time information has support for better management of the supply chain, especially by availing adequate information and data as per the request in supporting the day to day activities of each actors of the supply chain members to follow every status of their activities on real-time base and helped them to take appropriate action and informative decision on every activities. Through system utilization in the

supply chain management report can be generated electronically without manual intervention and hence the report becomes more reliable for further action to be taken.

✚ The availability of reliable support on the system during difficulties occurred on operational activities is mandatory as per respondent reflection to enhance the smooth operation of the system as well as the performance of supply chain. As clearly summarizes on the summary of both group response the end users of the system have not expertise on every aspects of the system and hence they need immediate support from back office during the need arise but inefficiency was observed on the back of team that give the support due to the poor practice of knowledge transfer during the implementation of supply chain management module on ERP system. For this reason system support has been vendor dependent and it was difficult to get real-time support as needed.

5.2. Conclusion

This research explains the relationship between the various determinants i.e system features in regards to its utilization and impact on the holistic supply chain performance in relation to specific parameters like reliability, relationship and flexibility.

- ✚ The primary purpose of this study was to investigate the correlation of system features with the performance enhancement of the supply chain management in case of ethio telecom implemented and operationalized ERP system. The research considers better management of system features on ERP towards that the benefit of achieving enhancing the overall performance of the supply chain. Through the review of different literature system features and SC performance has a relationship and the research finding also indicates that all system features have positively correlated with SC performance enhancement. The researcher concludes that the improvement on the system features have direct impact on the achievement of enhanced supply chain performance.
- ✚ End-to-end system integration of supply chain management on ERP has not implemented at as per the technical compliance stated as preconditions. In refers to system integration with vendor, suppliers and service provider the scope of ERP-SCM module deployment was limited internally and since the integrity level of the organization and abovementioned stakeholders are very limited the major activities in the supply chain outside the organization has been done manually. The integration within the supply chain module itself hasn't been done as per the demand of the activity requires. Users' participation during system implementation was very low or unsuccessful and the frequent change on the system has been a great challenge of system. In related to basic research question referring integration level the researcher can conclude that the level of integration of SCM module on ERP system with different members of the supply chain has not been as per the demand of the activity performed in the supply chain and it affects the holistic supply chain performance of the organization.

- ✚ Item standardization supports the supply chain to have the same language for specific product on every level of the supply chain members and also helps for better warehousing, inventory management and stock level identification. In addition from every part of the organization with the same item code every sourcing & SC activities can be managed easily, and finally it avoids description duplication for the single item. Item standardization has not been taken as a major activity and there was not accountable entity and clear policy for this activity in the organization. From this the researcher can conclude that one of the major challenges in using supply chain module in ERP was item standardization due to the above mentioned reason which is tested empirically through the study.
- ✚ Availability of report and real-time information has support for better management of the supply chain, especially by availing adequate information and data as per the request in supporting the day to day activities of each actors of the supply chain members to follow every status of their activities on real-time base and helped them to take appropriate action and informative decision on every activities. Through system utilization in the supply chain management report can be generated electronically without manual intervention and hence the report becomes more reliable for further action to be taken. Based on the data gathered from this research and analysis performed the availability of reporting features on the system is very limited and it has an impact to get reliable information and to decide an take appropriate action on each every level of supply chain activities. The researcher can conclude that one of the other major challenges in supply chain management through system was getting reliable information on the activities. Regarding stock control and inventory management the challenge related to system report was the discrepancy or unmatched between the report generated from the system and physical count report.
- ✚ Reliable support availability on the system during difficulties occurred on operational activities is mandatory for smooth operation of supply chain. The researcher can conclude that the end users of the system have not adequate knowledge on every aspects of the

system and also the support given from back office during the need arise was not satisfactory and inefficiency was observed on the back office team due to poor practice of knowledge transfer during system implementation and this leads the organization system support to be vendor dependent and it was difficult to get real-time support as needed. In addressing the research question in relation to the capability of ethio telecom to take over all system supports to end users related to SCM module the researcher can conclude that the organization is not capable to take over the overall system support from vendor currently as the back office team is not reached at expertise level to perform the task expected by the operation team of the supply chain management members.

5.3. Recommendation

Basing on the findings from the study, the discussion that followed and the conclusion drawn in line with the study objectives, the following points are recommended for ethio telecom in order to make better and informed correction action in regards to system utilization on ERP related to the supply chain management module to enhance the performance of the supply chain management as a whole.

-  The level of integration of SCM module on ERP system with different members of the supply chain member was assessed, evaluated and concluded. Since integration among supply chain members has a great role on the performance of the supply chain ethio telecom has to reconsider the implemented SC module on ERP by identifying the limitation on the system feature related to integration and widespread the scope of the module to include outside supply chain members like vendor, suppliers and distributors which have great impact on the service delivery of the company and satisfaction of its customers. In addition integration of members of the supply chain can optimize operational cost of the members. Therefore, focusing on how to improve the integration among supply chain members in using system technology to enhance the supply chain performance should be its priority.
-  In addition to the above recommendation user participation during implementation of should be the major area to be done by the organization which support to minimize frequent requirement change request after the system get operational.
-  Based on the research study the main challenges of ethio telecom on system technology utilization for integrated and holistic SCM was lack of item standardization. Regards to item standardization ethio telecom should assign job owner responsible for this task that will be define the item description, code, destination, nature and other features of each products to have the same understanding across company level and the supply chain members with clear supportive policy and procedure. As a result the organization can

secure that every supply chain activities from every corner can be managed in the same operational language.

✚ In relation to the challenge observed to get reliable reporting and information the company should re-assess the implemented system in relation to this problem and take appropriate action to tackle this. For instance the mismatch between the system report and physical count can be the area to be focused for reassessment to get where was the discrepancy occurs and take correction for better supply chain performance.

✚ Without reliable support any system can't run smoothly, and hence ethio telecom should focus on better knowledge transfer during system implementation and handover. In addition to that training on the system support has to be facilitated by the company to enhance the knowledge of the back office support team to manage system support activities professionally and properly with the ultimate goal of achieving the full support of the system to be handled in ethio's expertise which avoids vendor dependency in support regards.

Finally, the findings and the conclusion validated that system features has an excessive impact on the performance of the whole supply chain management, and therefore, ethio telecom should take the recommended appropriate action to see the effect on the overall supply chain performance.

5.4. Suggestion for Further Study

Today the fortune of every aspect of business achievement becomes dependent of technology utilization. Especially in supply chain management the impact of technology utilization becomes mandatory, this study has focused with limited scope of SCM module on the implemented ERP system. Therefore, the researcher recommends that other researcher shall study on the importance of system technology utilization for integrated and holistic SCM.

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Annex I: Survey Questionnaire

Questionnaire to be filled by Employees of Sourcing and Supply Chain Department of Ethio Telecom

Dear respondent,

I am Minas Ermias Teshome, a post graduate student at A.A University School of Commerce in the field of Logistic & Supply Chain Management. The primary purpose of this questionnaire is to collect data for a research on 'Assessment on Enterprise Resource Planning System Utilization with Special Reference to Supply Chain Management, In The Case of Ethio Telecom Sourcing' for academic purpose and complete the research paper. This information you provide will be used only for the purpose of study and will be kept strictly confidential. I would be very thankful for taking few minutes to genuinely answer the questions provided. Please don't write your name and/or address on the questionnaire.

E-mail address: minas.ermias@ethiotelecom.et

Phone number 0911 503325

Part I: General Information

Please put a tick mark (✓) on the appropriate response category:

1.1. Your working department

☐ Sourcing Department

☐ Supply Chain Department

1.2. Year of Experience

☐ Two yaers and below

☐ Three to Six Years

☐ Seven years and above

Part II: System Features and Supply chain Performance Items

For below questions, please indicate your position by putting tick /√/ mark on the appropriate response:

Degree of Position:

1	2	3	4	5
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>
<i>Very Low</i>	<i>Low</i>	<i>Neutral</i>	<i>High</i>	<i>Very High</i>

2.1. *System Integration*

S.N o.	System Integration Evaluation View	Evaluation Rate				
		1	2	3	4	5
1.	<i>How do you rate the internal end-to-end integration of the SCM module on ERP?</i>					
2.	<i>How do you rate the integration of ERP-SCM module with suppliers, vendors, service providers?</i>					
3.	<i>What is the extent of SCM module integration with other SC systems?</i>					
4.	<i>Do you agree that system users' participation during implementation was effectively successful?</i>					
5.	<i>How much is the impact of frequent request of new requirements to integrate with the existing system?</i>					

2.2. Item Standardization

S.N o.	Item Standardization Evaluation View	Evaluation Rate				
		1	2	3	4	5
1.	How do you rate the impact of item standardization on SCM?					
2.	Do you agree that there is responsible entity for item standardization in the company?					
3.	Item standardization minimizes duplication of codes and descriptions for the same item, do you agree?					
4.	Do you agree that there is clear policy and procedure to standardize items on the system?					
5.	How do you rate the impact of standardized item on supplier relation management?					

2.3. Reporting & Information Availability

S.N o.	Reporting and Information Availability Evaluation View	Evaluation Rate				
		1	2	3	4	5
1.	How do rate the extent of the system in providing real-time information on the day-to-day activities of the SC?					
2.	How do you rate the impact of report on stock control and procurement activities?					
3.	How do you rate the importance system/electronic reporting?					

2.4. System Support

S.No.	System Support Evaluation View	Evaluation Rate				
		1	2	3	4	5
1.	<i>How do you rate the extent/value of system support?</i>	1	2	3	4	5
2.	<i>During system implementation knowledge transfer was properly performed, do you agree?</i>	1	2	3	4	5
3.	<i>Ethio professionals are capable enough to support any system related queries?</i>	1	2	3	4	5
4.	<i>System support is dependent of the vendor, do you agree?</i>	1	2	3	4	5

Do you believe that SCM module on ERP system is fully integrated?

- *Yes. If your answer is "YES" please describe the integration level and the benefit*
- *No. If your answer is "NO" please explain*

Do you believe that user participation during implementation was important?

- *Yes. If your answer is "YES" please describe the integration level and the benefit*
- *No. If your answer is "NO" please explain*

Item standardization with clear policy and procedure has an impact on SC performance on ERP?

- *Yes. If your answer is "YES" please describe the impact and the benefit*
- *No. If your answer is "NO" please explain*

Do you believe system reporting has impact on SCM performance?

- *Yes. If your answer is "YES" please describe the level of impact and the benefit*
- *No. If your answer is "NO" please explain*

Please list down the impact of system support on SC performance

Please show the level of dependency on vendor support, if you agree that the support is still on vendor hands.

- - - - - Thank You for your cooperation! - - - - -