

**IMPACT OF INTEGRATED MANAGEMENT INFORMATION SYSTEMS
ON SERVICE LEVEL IN NON-GOVERNMENTAL ORGANIZATIONS IN
MOGADISHU SOMALIA**

BY

ABDULHAKIM MOHAMED WARSAME

D61/72809/2012

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENT OF THE AWARD OF MASTER OF BUSINESS
ADMINISTRATION IN THE SCHOOL OF BUSINESS,**

UNIVERSITY OF NAIROBI

OCTOBER 2013

DECLARATION

I, the undersigned, declare that this research project in its content is my original work and has not been presented for a degree in any other university.

Signed: Date: ____/____/____

Abdulahkim Mohamed Warsame

D61/72809/2012

Declaration by the Supervisor

This research project has been submitted for examination with my approval as the university supervisor.

Signed: Date: ____/____/____

DR. JAMES M. NJIHIA
Department of Management Science
School of Business
University of Nairobi

ACKNOWLEDGEMENTS

To the almighty Allah for giving me good healthy and strength for my entire life and the period of conducting this research. I also wish to acknowledge the efforts of my family members specially my dear wife, Masbil, My daughter, Rayan and my Son, Mohamed for their moral support and understanding throughout the programme particularly in the days and late evenings I could not be available to share with them my time because of attending classes and completing other academic duties in the library. And also to my employer for giving me the opportunity to pursue my education further.

To DR. JAMES M. NJIHIA, my supervisor for his valuable and professional guidance, support, advice, encouragement and dedication throughout the duration of the project. I am also gratefully to all my lectures in the Master of Business Administration Degree programme at the University of Nairobi for making me more knowledgeable than before I joined the Programme and all my colleagues and friends for their corporations and honorable sustenance.

Special mention also goes to all the respondents who took time for their busy schedules to offer a variety of information and data enabled this study to be a success. It is not possible to mention each person by name, but I wish to convey special thanks to each and everyone who played a role in the success of this study

DEDICATION

This research project is dedicated to all those who gave me inspiration of pursuing all that is noble and especially my mom, brothers, sisters and friends, thanks a lot for your support and encouragement during my educational endeavors.

TABLE OF CONTENTS

DECLARATION.....	ii
ACKNOWLEDGEMENTS.....	iii
DEDICATION.....	iv
ABSTRACT.....	viii
ABBREVIATIONS.....	ix
LIST OF TABLES.....	x
LIST OF FIGURES.....	xi
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background of the Study.....	1
1.1.1 Integrated Management Information System.....	2
1.1.2 Integrated Management Information Systems and Service Level.....	3
1.1.3 Somalia and NGOs.....	4
1.2 Problem Statement.....	6
1.3 Research Objectives.....	7
1.4 Value of the Research.....	7
CHAPTER TWO: LITERATURE REVIEW.....	8
2.1 Introduction.....	8
2.1.1 Integrated Management Information System.....	8
2.1.2 Service Level.....	9
2.1.3 IMIS and Service Level.....	10
2.1.3.1 Confidentiality.....	10
2.1.3.2 Integrity.....	11
2.1.3.3 Availability.....	11
2.1.3.4 Accessibility.....	12
2.2 Theories of Service Quality and IS Evaluation.....	13
2.2.1 SERVQUAL.....	13
2.2.2 SERVPERF.....	14
2.2.3 IT System Performance Evaluation.....	15
2.3 Summary and Research Gap.....	16
2.4 Conceptual Framework.....	18
CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY.....	19
3.1 Introduction.....	19
3.2 Research Design.....	19
3.3 Population and Sampling.....	19

3.4 Data Collection	20
3.5 Data Analysis	20
CHAPTER FOUR: DATA ANALYSIS, PERSENTATION AND INTERPRETATION...	21
4.1 Introduction.....	21
4.2 Response Rate.....	21
4.3 Demographic Information.....	22
4.3.1 Gender.....	22
4.3.2 Age.....	22
4.3.3 Level of Education.....	22
4.3.4 Working Experience	23
4.3.5 Current Job Profile.....	24
4.3.6 Number of Employees	24
4.4 Level of Integration Management Information Systems	25
4.4.1 years of operation.....	25
4.4.2 Type of Information System Used by Organization	25
4.4.3 Rate of Dependence on Information System	26
4.4.4 Formal Meeting.....	26
4.4.6 Frequency of the Meetings.....	27
4.4.7 Integration of IS in the organization	27
4.5 Service Level	29
4.5.1 Confidentiality of the System	29
4.5.2 Integrity as a Result of IMIS.....	32
4.5.3 Availability of the System	34
4.5.4 Accessibility of the System.....	35
4.6 Benefits of IMS Implementing	38
4.7 Comments	40
4.8 Regression Analysis of the Findings.....	40
4.8.1 Non-parametric correlation	43
4.9 Discussion of Findings.....	45
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION.....	48
5.1 Introduction.....	48
5.2 Summary of the Findings.....	48
5.3 Conclusions.....	49
5.4 Recommendations.....	50
5.5 Suggestions for Further Research	51
5.6 Limitations of the study	51

REFERENCES	52
APPENDICES	55
Appendix 1: Questionnaire	55
Appendix 2: List of NGOs Working in Somalia (2013)	61

ABSTRACT

The research aimed at investigating the impact of integrated management information systems on service level in non-governmental organizations in Mogadishu Somalia. The objectives in this case included: determining the impact on confidentiality as a result of integrated management information systems at the NGOs in Mogadishu, determining the impact on Integrity as a result of integrated management information systems at the NGOs in Mogadishu, determining the availability of the integrated management information systems at the NGOs in Mogadishu, determining how accessible the integrated management information systems are at the NGOs in Mogadishu.

Literature review was done on the relevant areas of information system and its relevance when integrated in the business environment. This study targeted to 50 NGOs which are using the integrated systems respondents in collecting data with regard to the impact of integrated management information systems on service level in non-governmental organizations in Mogadishu Somalia.

The regression equation has established that holding the influencing factors (confidentiality, integrity, availability and accessibility of the system) constant, factors affecting service level in Non-Governmental Organizations in Mogadishu-Somalia will be 0.116. This infers that IMIS confidentiality influences the service level in Non-Governmental Organizations in Mogadishu- Somalia most followed by IMIS availability, IMIS integrity and then IMIS accessibility. The study also established a significant relationship between service level in Non-Governmental Organizations in Mogadishu- Somalia and the independent variables; confidentiality, integrity, availability and accessibility as shown by the p values.

Conclusions made in this case suggest that there is great impact of integrated management information systems on service level in non-governmental organizations. However, the researcher advises the relevant bodies to carry out research on areas such as of state corporations and cooperative unions to get a better understanding of the situation.

ABBREVIATIONS

ADRA	Adventist Development and Relief Agency
CPD	Centre for Peace and Democracy CPD
II	Information Infrastructure
IMIS	Integrated Management Information System
IS	Information System
IT	Information Technology
MIS	Management Information System
NGO	Non-Governmental Organization

LIST OF TABLES

- Table 4.1: Response Rate
- Table 4.2: Respondents age
- Table 4.3: Respondents level of education
- Table 4.4: Distribution of respondents by Current job profile
- Table 4.5: Distribution of respondents by number of employees
- Table 4.6: Distribution by years of operation
- Table 4.7: Type of information system
- Table 4.8: Distribution by NGO dependence on information system
- Table 4.9: Formal meeting
- Table 4.10: Usefulness of integration of IS in organization
- Table 4.11: Provision of regular and structured training
- Table 4.12: Information security, measures and programs
- Table 4.13: Understanding of organization aspects
- Table 4.14: Comprehensive information integrity awareness programs
- Table 4.15: Frequency of organization doing back up
- Table 4.16: Extent of integrity of organization
- Table 4.17: Rating of organization
- Table 4.18: Regular and structured training
- Table 4.19: User Accessibility
- Table 4.20: Interruptions to business/work processes in organizations
- Table 4.21: Benefits of implementation of IMS
- Table 4.22: Model Summary
- Table 4.23: Analyses of Variables
- Table 4.24: Coefficients Results
- Table 4.25: Correlations

LIST OF FIGURES

Figure 2.1: IT Systems Performance Evaluation Kessler (1998)

Figure 2.2: Conceptual framework

Figure4.1: working experience

Figure 4.2: Frequency of meeting

Figure 4.3: Confidentiality awareness programs

Figure 4.4: Network infrastructures

Figure 4.5: Information security policy, measures and programs

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Laudon and Laudon (2002) define as Information System is a set of interrelated components that collect/retrieve, process, store and distribute information to support decision-making and control in an organization. Information system also refers to a collection of multiple pieces of equipment involved in the dissemination of information that may include hardware, software, computer system connections and information, information system users, and the system's housing.

According to Lucey (1997) Management Information System (MIS) is a planned system of collecting, storing and disseminating data in the form of information needed to carry out the functions of management. Academically, the term of MIS is commonly used to refer to the group of information management methods tied to the automation or support of human decision making. Consequently Management Information System provides information that organizations require to manage themselves efficiently and effectively because MIS is a key to planning, controlling and decision making for management through transaction processing of systems for the data.

Integrated Management Information Systems (IMIS) denotes an expanded information system that is achieved through systems design of an improved capability by functionally more information systems, or by incorporating a portion of the functional elements of one information system into another (Rao et al., 2007). Therefore IMIS help managers and workers to analyze problems and visualize complex subjects because it contains information about significant people, places and things within the organization or in the environment surrounding it was a resource like any other commodities.

1.1.1 Integrated Management Information System

Traditional information systems may be termed “Silos” a term commonly used in literature on organizational performance to describe inwardly focused organizational units where external relationships are given insufficient attention (Cooke, 2000). Breakdowns in communication, co-operation and co-ordination between unit participants and other stakeholders, and the development of fragmented behavior, are common features.

The result is that the organization falls short of making its best contribution to the needs of immediate and wider groups with an interest in the unit’s continued good performance. Intra-organizational silos can be seen as cultural phenomena. Specifically, silo is a cultural or social phenomenon than can affect business units, teams or functions within any organization. Silo mentality, for example, creates barriers within organizations, blocking opportunities including those that might be fostered by good communication e.g. relating to innovation, creativity and efficiency, and leading to duplication and other costs (Merkow et al., 2000).

To overcome the above challenges the concept of Integrated Management Information System was being approached where by MIS design should be as per the information needs of managers at different levels. Integration of management information systems either within or between organizations continues to be a subject of significant research and debate within academe (Rao et al., 2007). The concept of integration originates from a systems perspective: because trade-offs and wider ranging decisions can be made based on shared information and coordination, optimization of the whole system is held to achieve better performance than a string of optimized sub-systems (Lucey, 1997).

Thus the IMIS style is significant because of its ability to produce more meaningful and timely information, while looking at the complete picture of the interlocking subsystems of the Management Information System. Proper integrated management information system, coupled with the adoption of centralized treasury operations, can not only help developing governments gain effective control over their finances, but also enhance transparency and accountability, reducing political discretion and acting as a deterrent to corruption and fraud (Kamau, 2012).

1.1.2 Integrated Management Information Systems and Service Level

McCumber (2005) defines Service level of management information systems as a distinct set of information resources organized for the collection, processing, care, use, sharing, dissemination, of information and good quality service on the work place. Drucker (2003) stated the innovation of technology, the modification of information transform and the role of information can easily increase the performance of the work and also raises the satisfaction of the system's users. Use of information for decision making has become principal for the success of organizations.

Leeladhar (2005) states that many organizations would affirm that from playing a passive back-end role in the business, integrated management information has progressively become admitted as one of the key drivers of quality service level. Today's organizations would confirm that the integrated management information is pivotal to the success of every business and is a vital strategic asset. It is the platform on which organizations communicate not only internally but also externally, i.e., with other corporations.

Chesla (2004) asserts that with increased reliance on integrated management information and other technology there raises a new set of element needs which include confidentiality, integrity, availability and accessibility. He further asserts that integrated management information has improved the speed and efficiency of services and as a result has shaped the nature of the services provided to customers. According to McCumber (2005) factors which increase the performance of the system are: confidentiality, integrity, Availability and the Access of the system while in IMISs are well sustained that factors.

Furthermore the Management Information System has become a vital component of any successful business and is regarded as major functional areas just like any other functional area of a business organization like marketing, finance, production and HR. Thus it is important to understand the area of information system just like any other functional area in the business. MIS is important because all businesses have a need for information on the tasks which are to be performed. IMIS is used as a tool for solving problems and providing opportunities for increasing productivity, quality and automating the system. An automated system would help management appreciate the benefits of

efficient management of the Information System with the right system which brings good performance as an alternative.

Consequently Integrated Management Information System facilitate in tracking and monitoring at the same time control the system for the extraction of the right information through an application. And also the response of the required report for well access correlated information across the Management Information System database depended on the database and the data management system complexity of join operations and the differences between the data sources (Warkentin and Vaughn, 2006).

Further a well-designed information system in any organization is almost always aligned to serve the business needs. Lack of knowledge regarding the internal management system would make the successful removal of seams and obstacles in the entire system a challenge. This leads to that although the existence of barriers to integrated management information systems is acknowledged and the barriers categorized, research into the deeper behavioral roots of these barriers is still needed. The main aim of this research is thus to further explore the impacts of integrated management information systems on service level.

1.1.3 Somalia and NGOs

The Democratic Republic of Somalia is situated in the Horn of Africa (Touch points, 2013). It is bordered by Ethiopia to the west, Djibouti to the northwest, the Gulf of Aden to the north, the Indian Ocean to the east, and Kenya to the southwest. According to the World Factbook, the population is estimated to be 10 million in which two third of the population are nomads herding camels, sheep, and goats (GEOS, 2013). The civil war has started after former president Mohamed Siyad Barre administration was ousted by a coalition of clan-based opposition group. Since then, the country has been surrounded by violence, terrorism and poverty due to political instability for the past 22 years.

The humanitarian crisis in Somalia has also seen proliferation of civil society and non-governmental organizations in the defense of human rights and provision of humanitarian and emergency assistance (Rodrigues and Govinda, 2003). Examples Include the Centre for Peace and Democracy (CPD) is a non-profit and non-governmental organization fully dedicated to strengthening peace, promoting democracy and providing human rights

education in Somalia. It campaigns for the empowerment of civic society to end the fifteen years of crises and without effective central administration in Somalia (CPD, 2006). Similarly, Adventist Development and Relief Agency (ADRA) is a faith-based humanitarian agency committed to enhance the capacity of vulnerable communities in Somalia (ADRA, 2010). Likewise SAACID is an original Somali, not-for-profit, non-religious, non-political, Non-Governmental Organization (NGO) founded and directed by Somali women that focuses on practical measures to enhance the life-options of women, children and the poor.

The NGOs in their mission for survival have embraced management norms that indicate well for them. Indeed, the large data that they hold deserve a wise management and use of information systems enabled remote management of programmes and projects through regional offices in Nairobi (Kamau, 2012).

Local partner NGOs helps international foreign NGOs to channel humanitarian assistance to those in need at grassroots level by using integrated information system management for reporting, controlling, monitoring and evaluating programmes. It is in this spirit therefore that integrated management information system has taken shape.

And then Integrated MISs processing these valuable data through online transaction processing with open source that facilitated Management gets the required reports immediately. Truly, there is broad agreement that a fully functioning integrated management information system improves NGOs by providing real-time information that people can use to administer programs effectively, formulate budgets, and manage resources.

1.2 Problem Statement

In order to optimize the value of a non-governmental organization in particular, inter organizational information sharing and coordination is invaluable. Lack of information system integration causes insufficient data sharing across all processes and activities.

This can decrease the productivity of the organization dramatically (Joanbb, 2008).

Managers are often overwhelmed by the abundance of these technologies in the marketplace, as they find it hard to figure out what each of these technologies do, which ones they should purchase, and how to successfully integrate them in their organization's existing routines and enhance performance. McCumber (2005) stated that there is still a lack of understanding of the barriers to internal integration of management information system mainly on confidentiality, integrity, availability and accessibility

In fact, the place and the impact of integrated management information system can be discussed with varied opinions observer. In spite of this, it stands out that IMIS has been touted as a game changer in the whole process of information handling and processing (Pattinson, 2007; McCumber, 2005; Merkow and Breithaupt, 2000; Saunders, 2003). The consolidation of information and voluminous data has in itself improved transparency and quick access to such information. However, the adoption of this facility has been slow in the NGO sector as opposed to the huge companies and institutions (Ogeto, 2004).

Integrated management information systems researchers have empirically demonstrated that IMIS investments enhance firms' productivity, consumer welfare, and comparative advantage (Griffith, 1999). Further, other studies have confirmed that IMIS investments increase Firm's management capabilities and the managerial skills associated with acquisition (MacGregor 1996), management and use of integrated management information systems investments, have significant impact on business performance (Johansson, 2002). However, not enough attention has been devoted toward understanding how and why the integrated management information systems investments impact service level. Therefore this study aims the question to answer. What are the impacts of integrated management information systems on service level in NGOs in Mogadishu?

1.3 Research Objectives

The study aimed at investigating the impacts of integrated management information systems on service level in Non-Governmental Organizations (NGOs) in Mogadishu-Somalia and the study was guided by the following specific objectives;

- i. Determining the effect on confidentiality as a result of integrated management information systems at the NGOs in Mogadishu
- ii. Determining the impact on integrity as a result of integrated management information systems at the NGOs in Mogadishu
- iii. establishing the availability of the integrated management information systems at the NGOs in Mogadishu
- iv. Ascertaining the accessibility of integrated management information systems are at the NGOs in Mogadishu

1.4 Value of the Research

The research findings will contribute to a better understanding of the impacts of integrated management information systems. This will enable focused intervention strategies and also coordinated efforts facilitated effectiveness of integrated management information systems.

Effectiveness integrated management information systems may go a long way in helping solve problems of slow service delivery, bureaucratic procedures, and communication breakdown in the construction sector by identifying the major reasons may help the industry or government to provide appropriate information and support thus enhance appropriateness of integrated management information systems.

Finally this study will assist the NGOs working in Somalia to understand the importance of IMIS for their work, and also determined the values of system's confidentiality, integrity, availability and accessibility.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter contains the relevant literature on the Integrated Management Information Systems (IMIS) on the basis of which analysis of empirical data from the field is made which are core activities of any researcher in the social sciences also the theoretical review of the study. The first section of this chapter thus presents review of related literature in line with the objectives stipulated in the first chapter, the second section dowries the theory used by the study, finally the chapter presents the research gap and summary.

2.1.1 Integrated Management Information System

Integrated management information systems are activities implemented with the aim to minimize the use of unnecessary, redundant resources to address the overlapping requirements of performance balancing, network management, reducing outages, system maintenance costs, and migration to new hardware and software system versions (Leeladhar, 2005). Several management systems therefore exist in an organization for its proper running. The word integration has been used with at least four distinct meanings in the IMIS literature: a process, a condition, a system, and an end-state (Kairab, 2005). In this study in the context of integrated management information systems, the term ‘integration’ is used in the sense of a process leading up to integrated systems. Conceptually speaking, integrated systems are systems that work together even though they never were intended to do so. Chesla (2004) research shows that success or failure of the integrated management information systems process is not a matter of arriving at integrated MIS, but a matter of resources and time spent and how well the integrated management information system matches the user requirements.

Integrated management information system is currently only considered after a deal is secure when the managers are left with the often extremely difficult task of integrating two fundamentally different IS environments (Chesla 2004). IS management can be summarized as having one focus on the basic structural options of IS and one focus on the options’ consequences to users. The objective of IS integration management to direct IS integration in a way that it contributes to organizational integration has a logical

parallel in IS management and its objective of contributing to the business of an organization. Similarly, structural options of IS management have parallels in IS integration management. The managerial task of choosing among alternatives of how to form the organizational IS is paralleled by the choosing among alternatives for IS integration (Drucker, 2003). It lies within the managerial scope to understand which alternatives exist and how they affect the organization, and in the case of IS integration, it relates to the organizational integration. If the potential obstacles and downsides of enterprise-wide systems are ignored, the potential effects on business summarize the business effects that could be achieved through integration.

Hence according to Bianco (2001) the “best case-scenario” includes benefits of business process improvements. The standard packages are developed upon some kind of best practice for business processes which is transferred to the implementing organization; organizational integration- the use of IMIS enables coordination and cooperation between different parts of the organization, data and information access- using one single system throughout the organization enables instant access to real time data on every process; standardized processes- the inbuilt logic of the installed system forces employees to carry out activities in a standardized manor which hopefully would be the best way of doing an activity; flexibility- automation of business process can enable product customization and faster swifts in production; productivity appropriate IMIS support enables more efficient production; customer satisfaction- better control through transparency and standardized quality service and etc. IMIS can be centralized to benefit from scale advantages; time to market- information flows from sales to product development and IMIS support for product development enables the organization to faster respond to the market, handle growth- as will be explained later in this chapter, inclusion of acquired units into the existing enterprise-wide system is one way of carrying out IS integration.

2.1.2 Service Level

Barney (1991) defines service level as measures that quantify performance of a system. Certain goals are defined and the service level gives the percentage to which those goals should be achieved. Service level in management information system ensures efficiency, as well as the complexity of modern IT instruments, information is predominantly

processed in the form of electronic data in computer systems within the framework of planning, decision, execution and control of transactions of all types (Biri et al, 2004). The purpose of this study is to determine limitation of IS to the specific aspect of IMIS in ensuring service level would be an undue simplification because other types of important data sources are therefore ignored. In addition, such as limited approach may hardly take the strategic objectives of the particular organisation into consideration. When exchanging information to help facilitate business processes, the importance of privacy is fairly well established and has become regular.

2.1.3 IMIS and Service Level

IMIS operational units on service level in an organization are normally associated with increased efficiency, while functional integration is likely to lead to organizational effectiveness (Roper et al., 2006). According to McCumber (2005) there are four factors which should lead to increased IMIS on service level these are Confidentiality, Integrity, Availability and Accessibility, of the Systems.

2.1.3.1 Confidentiality

Osborne (2006) defines confidentiality is the requirement that particular information be restricted to the appropriate people. The concept of confidentiality attempts to prevent the intentional or unintentional unauthorized disclosure of a message's contents. Loss of confidentiality can occur in many ways, such as through the intentional or unintentional release of private company information or through a misapplication of network rights.

According to McCumber (2005) confidentiality is perhaps the most widely recognized and most deeply studied security requirement, McCumber (2005) concludes that confidentiality is a relatively simple concept that, in practice, requires a broad spectrum of technology and procedural enforcement in IT systems. Once you have developed your confidentiality policies and have charted them in the methodology, you will have a basis for determining the requirements for cryptography and other confidentiality safeguards. When combined with the structured process, it becomes a powerful method to strategically assess organization confidentiality policies and a key tool for tactically applying technology to support security requirements.

2.1.3.2 Integrity

Osborne (2006) defines integrity as the principle that requires information to maintain its precision. The concept of integrity ensures that: modifications are not made to data by unauthorized personnel or processes, unauthorized modifications are not made to data by authorized personnel or processes, and the data is internally and externally consistent; in other words, that the internal information is consistent among all sub entities and that the internal information is consistent with the real world (external situation). According to McCumber (2005), the integrity element of security is foundational. Inaccurate information can be worse than worthless. It can provide a false understanding of the business environment or even a military battlefield and lead decision makers into taking self-destructive actions. McCumber (2005) concludes that information integrity is one of the most demanding and yet the subtlest and least defined of the information attributes to maintain. The great majority of investment in safeguards and protective techniques are targeted at maintaining information integrity. Yet, it is vital to ensure that integrity is assessed and enforced even at the acquisition of the data or the information's introduction into your systems.

2.1.3.3 Availability

Osborne (2006) defines availability as the principle to ensure that our data will be available in a timely manner. The concept of availability ensures the reliable and timely access to the system or computing resources by the appropriate personnel. In other words, availability guarantees that the systems are up and running when needed. In addition, this concept promises that the security services that the security practitioner needs are in working order. According to McCumber (2005), if information is needed for a decision or for any other purpose and it is not there, it is simply not available. If integrity represents the accuracy and robustness of data, then availability is the timeliness factor. Availability also employs a variety of other safeguards and countermeasures to ensure that information resources are available when they are needed for the decision makers. Understanding the nature of security requires the practitioner to ensure that security is applied to the information resources in the context of their environment. Security is a

moot concept unless it is fully analysed with the elements of information valuation threats as safeguards.

2.1.3.4 Accessibility

There are increasing pressures for companies to register for one or more of the international standards. In addition to that, some industry-specific guidelines or standards exist for different management systems. Some government bodies also require certain management system for example, in the US, the Occupational Health and Safety Agency (OHSA) requires a management system for process safety. In addition to the above companies need to meet the requirements imposed by their corporate headquarters, parent company or customer. The company may then be faced with the challenge to remain competitive yet meet all the system requirements. The only way to do this will be to have a single integrated management system. New requirements will thus be integrated into an already existing system easily than setting up a new separate system each time. Buhl et al (2008) confirms this by stating that IMS simplifies the system, gives it more functionality and totality and that it is easier to expand with the addition of one more standard.

An IMS focuses on business needs and gives added values to the business because the company re-evaluates requirements and does what is good for the business. That is, the standards are interpreted more holistically in such a way that the company meets both the system requirements and the company's need. The overall missions and goals are established through a single management system. There is therefore improved effectiveness since the IMS has to be well-designed and thoroughly implemented. This is because most organizations implementing an EMS already have some kind of management system in place. IMS makes a system to be more logical from an overall evaluation of economy, functionality and clarity for the user. The company will be at the forefront by promoting its image and credibility. It will hinder sub optimisation, improve utilisation of the safety organisation and lead to more sustainability mentality or way of thinking in the company (Buhl et al 2008).

Improved effectiveness above will definitely lead to a reduction in cost. It would be of course less expensive to implement an IMS than numerous separate management

systems. Less time is used for maintenance and time and money are saved after establishment (Buhl et al 2008). According to Baldi (1999) Integration serves the overall business needs of a company by reducing redundancies and conflicting elements that are commonly found when two or more separate systems are used. Environmental staff can benefit from existing core systems (e.g. document control, calibration, definition of responsibilities, and record management). They do not have to design the system. For those jobs having a potentially significant environmental impact, quality procedures and work instructions can be amended to include key environmental process requirements. This allows employees to understand both requirements within one set of procedures.

2.2 Theories of Service Quality and IS Evaluation

The theories of service quality have come to be recognized as a strategic tool for attaining operational efficiency and improved business performance. Thus this study embodies SERVQUAL and SERVPERF which are the two most widely promoted and applied service quality measure and Information System Evaluation (ISE) which are also the integral part of IS management Control process.

2.2.1 SERVQUAL

The foundation for the SERVQUAL scale is the gap model proposed by Parasuraman, Zeithaml and Berry (1985, 1988). With roots in disconfirmation paradigm, the gap model maintains that satisfaction is related to the size and direction of disconfirmation of a person's experience *vis-à-vis* his/her initial expectations. As a gap or difference between customer 'expectations' and 'perceptions,' service quality is viewed as lying along a continuum ranging from 'ideal quality' to 'totally unacceptable quality,' with some points along the continuum representing satisfactory quality. Parasuraman et al., (1988) thought that when perceived or experienced service is less than expected service, it implies less than satisfactory service quality. But, when perceived service is less than expected service, the obvious inference is that service quality is more than satisfactory. Further the servqual theory the user's' (customer) responses to their expectations and perceptions are obtained on a 7-point Likert scale and are compared to arrive at (P-E) gap scores. The higher (more positive) the perception minus expectation score, the higher is perceived to

be the level of service quality. In an equation form, their operationalization of service quality can be expressed as follows:

$$SQ_i = \sum_{j=1}^k (P_{ij} - E_{ij})$$

Where: SQ_i = perceived service quality of individual 'i'

k = number of service attributes/items

P = perception of individual 'i' with respect to performance of a service firm attribute 'j'

E = service quality expectation for attribute 'j' that is the relevant norm for individual 'i'

2.2.2 SERVPERF

Cronin and Taylor (1992) were amongst the researchers who leveled maximum attack on the SERVQUAL scale. They questioned the conceptual basis of the SERVQUAL scale and found it confusing with service satisfaction. They, therefore, opined that expectation (E) component of SERVQUAL be discarded and instead performance (P) component alone be used. They proposed what is referred to as the 'SERVPERF' scale. Besides theoretical arguments, Cronin and Taylor (1992) provided empirical evidence across four industries (namely banks, pest control, dry cleaning, and fast food) to validate the superiority of their 'performance-only' instrument over disconfirmation-based SERVQUAL scale. Being a variant of the SERVQUAL scale and containing perceived performance component alone, 'performance only'. A higher perceived performance implies higher service quality. In equation form, it can be expressed as:

$$SQ_i = \sum_{j=1}^k P_{ij}$$

Where: SQ_i = perceived service quality of individual 'i'

k = number of attributes/items

P = perception of individual 'i' with respect to performance of a service firm on attribute 'j'

2.2.3 IT System Performance Evaluation

Cole and Conley (2005) propose a framework for IS research by considering the returns on investments in IT measured with market measures such as abnormal returns or accounting performance measures such as ROA. This study encompasses research that addresses the general question shown in Equation (1).

$$\text{Performance} = f(\text{IT}) \dots\dots\dots (1)$$

Kessler (1998) present a general framework for analyzing this research in Figure 1. The top portion of Figure 1 shows that IT has a direct or indirect effect on business processes, which together determine the overall performance of the firm. An example of a direct effect is improving the user’s work place, which increases user satisfaction, productivity and work group, An example of an indirect effect is improving decision making by having information from a new IS that was previously unavailable.

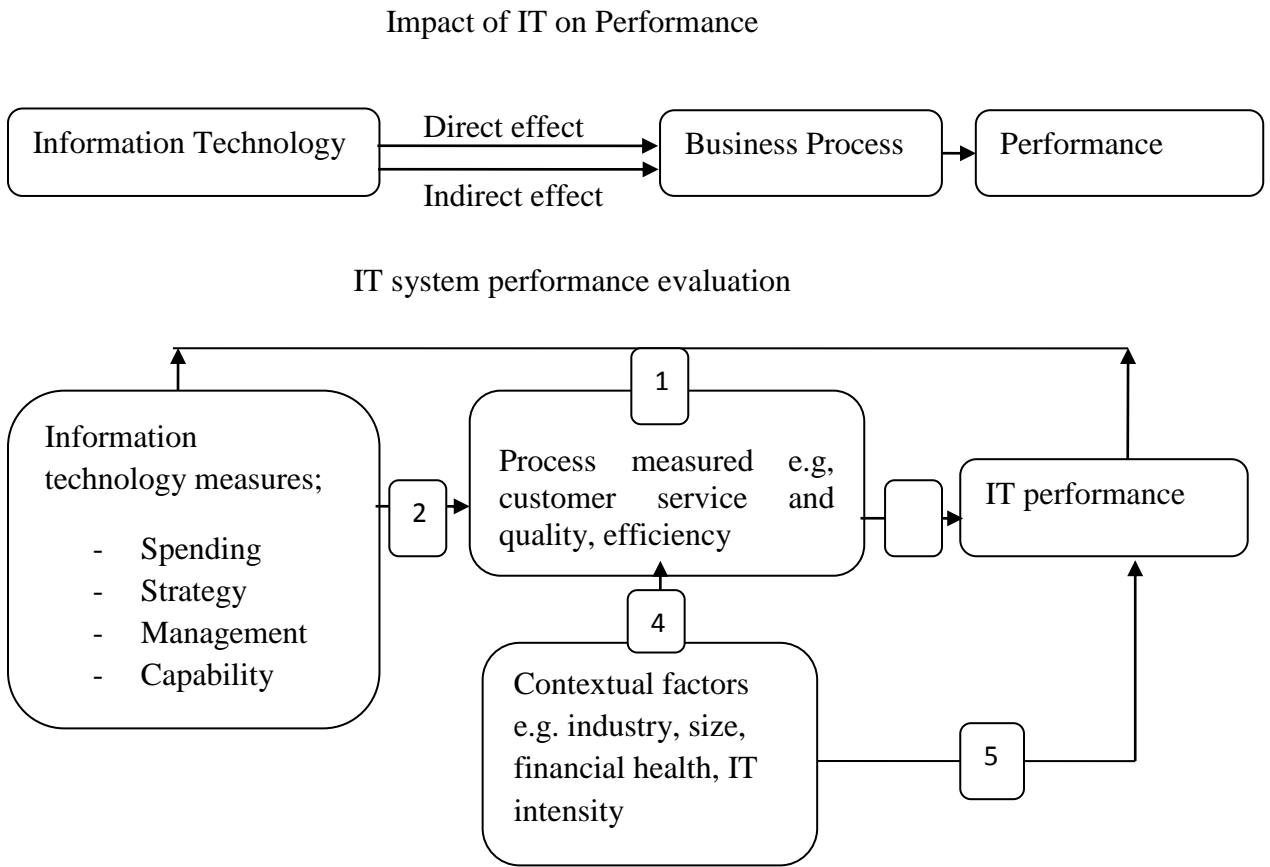


Figure 2.1: IT Systems Performance Evaluation Kessler (1998)

The bottom half of Figure 1 shows how researchers have measured IT, business process performance, or firm performance. Generally, investments in IT have been examined three ways: (1) differences in the amount of money spent on IT, (2) the type of IT purchased, (3) how IT assets are managed. Garg et al., (2003) refer to these as IT spending, IT strategy, and IT management/capability. Researchers who quantify the explanatory variables based on IT spending have looked at total IT spending, IT training expenditures, and IT staff expenditures.

Researchers who examine IT investments using IT strategy usually examine IT deployments such as type of system (e.g., electronic commerce or ERP), performance advantages from early deployment of technology (first-mover advantages or proprietary technology advantages), or IT-enabled strategies such as improved product quality due to new technology. All studies that use market performance measures are by default investigating Path 1 since there are no market measures of business processes.

Path 2 describes the relation between IT and business process performance. Path 3 shows how these process measures combine or interact to determine overall firm performance. The link between IT and performance depends on other factors, which we refer to as Contextual Factors in our framework. Path 4 of Figure 1 presents the Contextual Factors that link business processes and firm performance measures.

2.3 Summary and Research Gap

The review of existing literature reveals that there are several important research topics in the study of integrated management information systems on service level. This section identifies a number of research gaps and summary that this study tries to address to contribute to current empirical base.

First, service level has become an increasingly important concept and practice in nonprofit research and management. The existing literature fails to provide a clear linkage of integrated management information systems on service level and the use of IMIS this concept has been rather inconsistent. This study will go a notch higher and bring a relatively balanced on Integrated management information systems on service level and empirically tests these two dimensions of diversification by investigating their relationship with other variables.

Second, the determinants of service level have not been systematically studied. Insufficient attention has been paid to examine the factors that impact the service level for nonprofit organizations. There is therefore a need in developing a conceptual model that explains complex causal relationships between various contextual factors and performance diversification.

This study fills in this research gap by exploring the impacts of integrated management information systems on service level in Non-Governmental Organizations (NGOs) working in Mogadishu Somalia. Third, previous studies have identified a number of structural and environmental factors that affect IMIS performance. However, relatively little research has been conducted to systematically examine the impact of various contextual factors on IMIS performance and an overall theory of IMIS on service level remains to be developed.

2.4 Conceptual Framework

A conceptual framework is a diagrammatical research tool intended to assist the researcher to develop awareness and understanding of the situation under examination and to communicate this a conceptual framework is used in research to outline possible courses of action or to present a preferred approach to an idea or thought (Mackau, 2003). It can be defined as a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation. The interconnection of these blocks completes the framework for certain expected outcomes.

An independent variable is one that is presumed to affect or determine a dependent variable (Dale, 2001). It can be changed as required, and its values do not represent a problem requiring explanation in an analysis, but are taken simply as given. The independent variables in the study will be: the implementation of IMIS under level of IS integration: Coordination, cooperation, standardization of process and user satisfaction

A dependent variable is what is measured in the experiment and what is affected during the experiment, it responds to the independent variable (Dale, 2001). The dependent variable in the study will be Service level: confidentiality, integrity, availability and access.

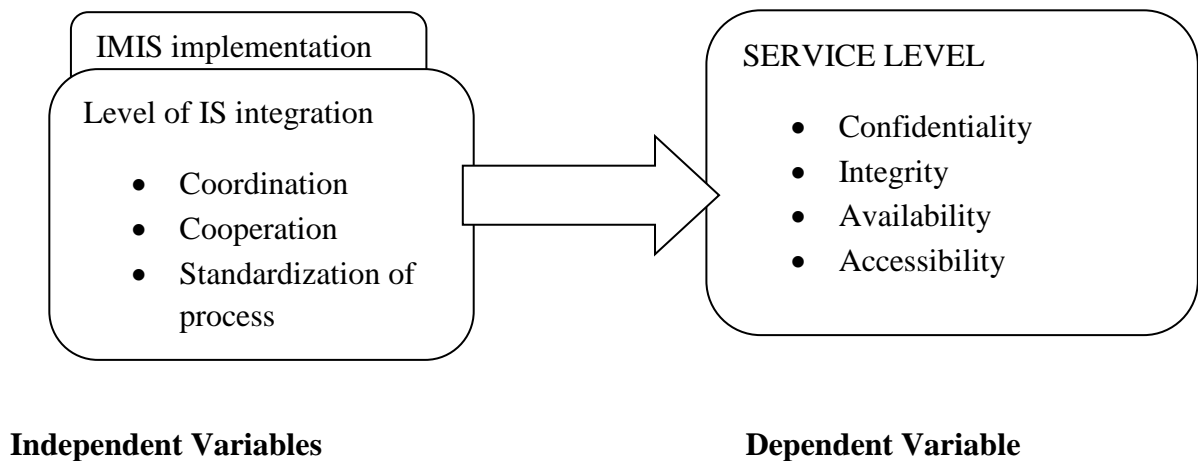


Figure 2.2: Conceptual framework

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

According to Kombo and Tromp (2006) Research is defined as the process of arriving at a dependable solution to a problem through planned and systematic collection analysis and interpretation of data. This chapter outlines the research methodology that was employed in this study. The research methodology highlighted the overall approach taken in the research in terms of the research design, the target population and the sample designs. The chapter further explains data collection instruments and data analysis process.

3.2 Research Design

Coopers and Schindler (2003) defines research design as the blue print for the collection measurement and the analysis of data. This study used a cross section survey which was suitable in situations .This design was considered appropriate since this study established the Impacts of Integrated Management Information Systems on Service Level in Non-Governmental Organizations (NGOs) working in Mogadishu Somalia .The study proposed to consider this design since the research was designed to obtain pertinent and precise information status of the phenomena. It described data and characteristics about the population or phenomenon being studied. Descriptive designs are used in preliminary and exploratory studies to allow the researcher to gather information, summarize, present and interpret for the purpose of classification.

3.3 Population and Sampling

There are registered Non-Governmental Organizations (NGOs) in Somalia with varying goals and mandate according to The Somalia NGO Consortium (2013). Thus the target population of study was the NGOs working in Mogadishu Somalia while the target respondents in this study was the IT managers to determine how the IMIS impacted on service level because they are fully involved system and its performance to the organization.

A census of the whole population was carried out and the study targeted to 50 NGOs which are using the integrated systems.

3.4 Data Collection

According to Kombo and Tromp (2006) there are two types of data primary and secondary data. Primary data is facts, assumptions or premises obtained directly from the field. Secondary data is applied to facts, assumptions and premises contained in documentary sources. However the primary data will be the source of this study.

Thus the data was collected by self-administered questionnaires and in this case, the test items were brief and clear in wording and also the items were made to be as simple to understand as possible (Cooper and Schindler, 2003). The study used self-administered questionnaires because it is less costly and easier to collect data by this method. Further the researcher administered the questionnaire to the respondents by hand in order to ensure that the right person received it.

3.5 Data Analysis

Data analysis is the whole process, which started immediately after data collection and ended with the interpretation and processing of results According to Kombo and Tromp (2006)). The questionnaires were edited then coded to facilitate statistical analysis. The impacts of IMIS was analyzed a simple linear regression for service level and for each of the dimensions.

Also the study applied a quantitative approach through the use of frequency of distribution, mean scores and standard deviations to analyze the data. With the help of Statistical Package for Social Science (SPSS) and Microsoft Excel the findings will be presented in form of frequency distribution tables, bar charts and pie charts. The data will be summarized according to the study's specific objectives.

CHAPTER FOUR

DATA ANALYSIS, PERSENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents analysis and findings of the study as set out in the research methodology. The results are presented on the impact of integrated management information systems on service level in non-governmental organizations in Mogadishu Somalia. The data was gathered exclusively from questionnaire as the research instrument. The questionnaire was designed in line with the objectives of the study. To enhance quality of data obtained, Likert type questions were included whereby respondents indicated the extent to which the variables were practiced in a five point Likerts scale.

4.2 Response Rate

The study targeted to 50 NGOs which are using the integrated systems respondents in collecting data with regard to the impact of integrated management information systems on service level in non-governmental organizations in Mogadishu Somalia. From the study, 35 out of 50 respondents have filled in and returned the questionnaire contributing to 70%. This commendable response rate was made a reality after the researcher made personal visits to remind the respondent to fill-in and return the questionnaires.

Table 4:2: Response Rate

Response	Frequency	Percentage
Responded	35	70
Not responded	15	30
Total	50	100

4.3 Demographic Information

In order to capture the general information of the respondents, issues such as gender, level of education, and number of years of experience were addressed in the questionnaire

4.3.1 Gender

From the analysis carried out it indicated that 70 % were male while 30 % were female. The sample selected was a representative sample by gender. This shows that the study did not observed gender parity.

4.3.2 Age

The analysis carried out on age shows that 46% of the respondents were in the 26-30 years' bracket while a further 43% were in the 30-35 age brackets. Minority of the respondent fell in the age bracket of 36-40 years which was 11 %. This shows that majority of the IMIS users are in their youthful age.

Table 4.2: Respondents age

Age groups	Frequency	Percent
26-30	16	46
30-35	15	43
36-40	4	11
Total	35	100

4.3.3 Level of Education

The analysis indicated levels of education with 14 % of the respondents having attained college, 40% university, and post graduate were 9 % whereas other forms of education carried 37%. The findings show that majority of the IMIS users are well educated and hence this provide a better avenue for innovation.

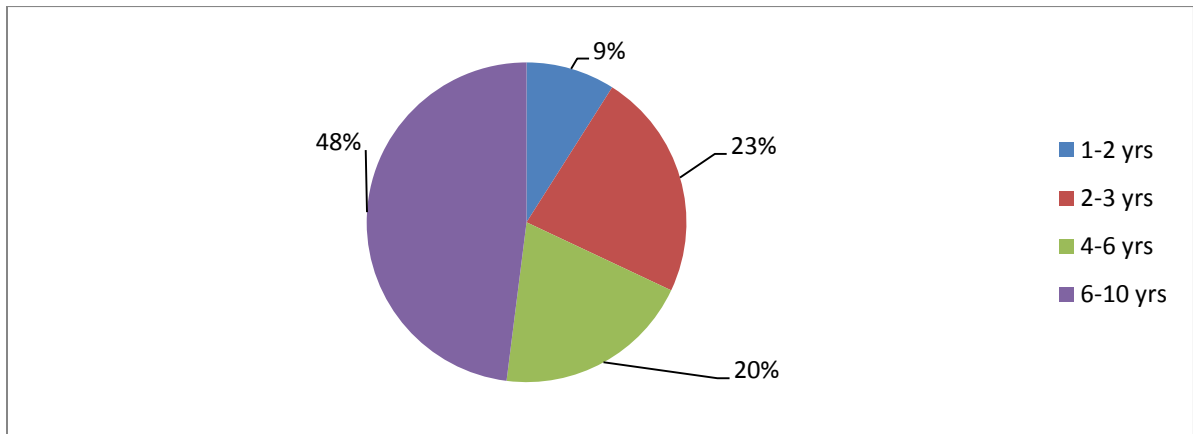
Table 4.3: Respondents level of education

Level of education	Frequency	Percent
College	5	14
University	14	40
Post graduate	3	9
Others	13	37
Total	35	100

4.3.4 Working Experience

From the analysis carried out it was observed also that the respondents have various years of experience at their work places with 48 % having worked for between 6-10 years, this was followed by 23 % who have worked for 2-3 years, followed by 20% who have worked for 4-6 years and finally we had 8.6% who have worked for 1-2 years.

Figure4.1 working experience



4.3.5 Current Job Profile

Most of the respondent are It managers/consultants who are 69%, followed by network administrators who are 14 % and then there are program officers and others in different job profile who were equal i.e. 8 %.

Table 4.4: Distribution of respondents by Current job profile

Job profile	Frequency	Percent
IT manager/consultant	24	69
network/system admin	5	14
Others	3	9
program officer	3	8
Total	35	100

4.3.6 Number of Employees

The leaders in this research indicated different number of employees also with majority having over 100 employees, followed by 76-100 employees, others had equal percentage of 5.5 % i.e. less than 25 employees and 26-50 employees.

Table4.5: Distribution of respondents by number of employees

Number of employees	Frequency	Percent
less than 25	2	5.5
26-50	2	5.5
76-100	9	26
above 100	22	63
Total	35	100

4.4 Level of Integration Management Information Systems

The research also sought to understand the confidentiality level of integration management information systems in the organization. This was done by establishing the number of years organization been on operation, type of information system organization use, dependence of the organization on information system, formal meetings for structure to evaluate the impacts of IS in organization and frequency of the meetings.

4.4.1 years of operation

From the analysis carried out there is 49% organizations that have been in operation for more than 15yrs , 34 % of the organization have been in operation for 5-10yrs, 17% of the organizations have been in operation for 10-15yrs the ones which have been in operation for less than 5yrs and 10-15yrs had equal percentage of 0 . This is as shown in table below.

Table 4.6: Distribution by years of operation

Years of operation	Frequency	Percent
less than 5yrs	0	0
5-10yrs	12	34
10-15yrs	6	17
more than 15yrs	17	49
Total	35	100

4.4.2 Type of Information System Used by Organization

The type of information that the organization use from the research indicates that many organization have embraced use of integrated information system i.e. 83 % while others carried 17%.This is shown in table below

Table 4.7: Type of information system

Type of information system	Frequency	Percent
Integrated	29	83
Others	6	17
Total	35	100

4.4.3 Rate of Dependence on Information System

It was observed that there is high dependence on the information system i.e. 94 % and others lowly depend on information system i.e. 6 %. This is as shown in table below

Table 4.8: Distribution by NGO dependence on information system

NGO dependence on information system	Frequency	Percent
Very high	2	5
High	33	95
Total	35	100

4.4.4 Formal Meeting

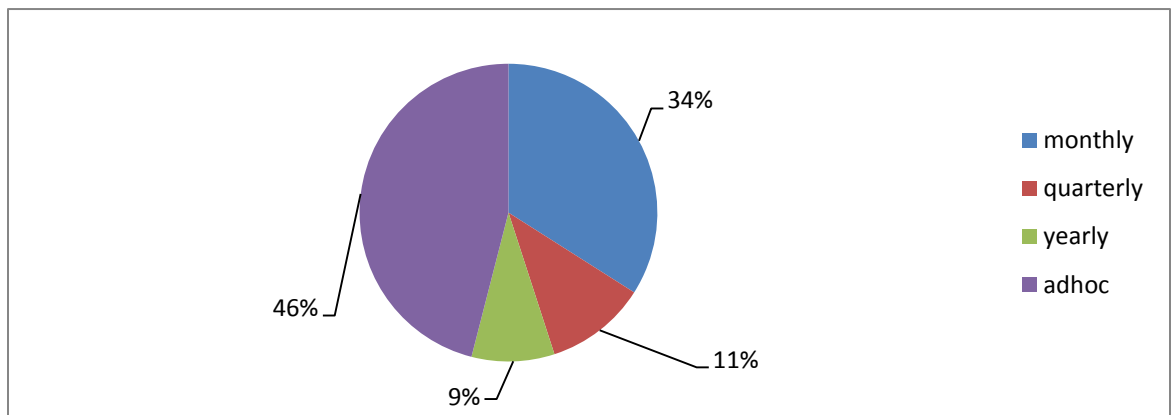
The analysis carried out also indicates that all of the organizations carry out formal meeting for structure to evaluate impacts of information system in the organization.

Table4.9: Formal meeting

Response	Frequency	Percent
Yes	35	100
No	-	-
Total	35	100

4.4.6 Frequency of the Meetings

Figure 4.2 Frequency of meeting



The research required us to determine how frequently meetings are held .From analysis 46 % of the respondents carry out ad hoc meetings on information system, 34% carry out meetings monthly, 11% quarterly while 9 % carry out yearly. This is as shown in figure above.

4.4.7 Integration of IS in the organization

The research aimed at understanding the extent to which: integration of IS has enabled Coordination between different parts of the organization, from the respondent mean of 4.77was generated that shows a very good support; integration of IS has enabled Data and information access-using one single system throughout the organization, from respondent a mean of 4.43 was generated that shows a good support; integration of IS has enabled data and information access-using one single system throughout the organization, from respondent a mean of 4.51 was generated that shows a very good support;

integration of IS has enabled the instant access to real time data on every process in the organization, from the respondent a mean of 3.97 was generated that shows a good support; integration of IS has enabled Standardized processes-the inbuilt logic of the installed system forces employees to carry out activities in a standardized manner, from the respondent a mean of 4.00 was generated that shows a good support; integration of IS has enabled the best practice of doing the process of activities, from the respondent a mean of 3.89 was generated that shows a good support; integration of IS has enabled flexibility-automation of business process enables product customization and faster change in production, from the respondent a mean of 3.89 was generated that shows a good support; integration of IS has enabled Productivity appropriate IMIS support enables more efficient production, from the respondent a mean of 4.03 was generated that shows a good support.

Table 4.10: Usefulness of integration of IS in organization

Statement	Mean	Std. Deviation
Coordination	4.77	.646
Data and information access-using one single system throughout the organization	4.43	.655
The instant access to real time data on every process in the organization	4.51	.507
Standardized processes-the inbuilt logic of the installed system forces employees to carry out activities in a standardized manner	3.97	.785
The best practice of doing the process of activities	4.00	.485
Flexibility-automation of business process enables product customization and faster change in production	3.89	.867
Productivity appropriate IMIS support enables more efficient production	4.03	.785

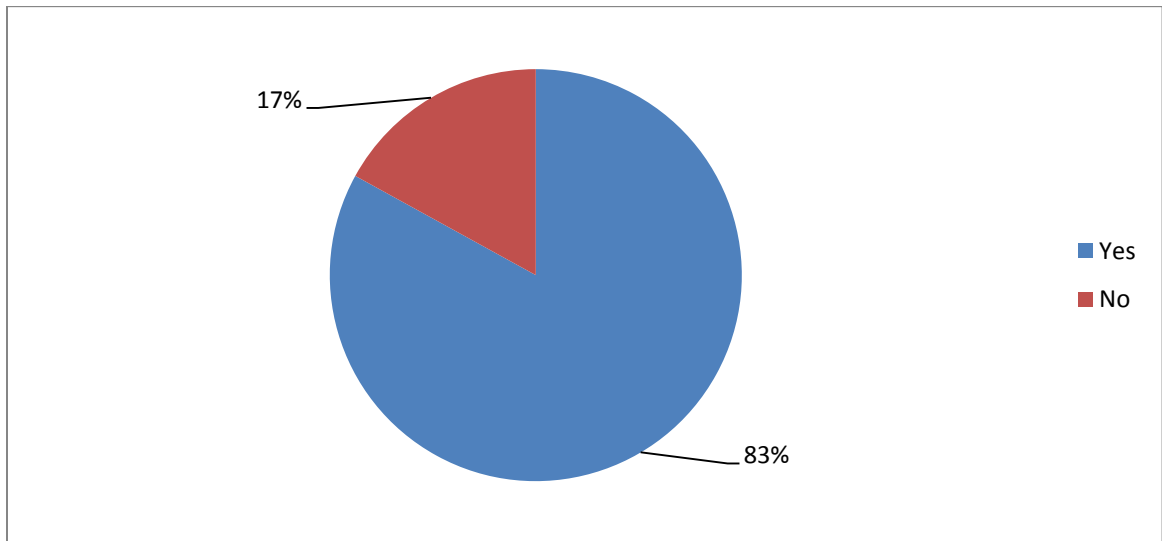
4.5 Service Level

4.5.1 Confidentiality of the System

4.5.1.1 Confidentiality Awareness Programs

The research aimed at establishing if comprehensive information confidentiality awareness programs in place.

Figure 4.3 Confidentiality awareness programs



From analysis carried out 83% of the respondents feels that they are in place. Whereas 17% feels that they are not in place. This is shown in figure above

4.5.1.2 Regular and Structured Training

The research aimed at investigating whether the organization provide regular and structured training to its employees on confidential and policy of IMIS use.

From the analysis all the respondents feel that organization provide regular and structured training to its employees on confidential & policy of IMIS use.

Table 4.11: Provision of regular and structured training

Response	Frequency	Percent
Yes	35	100
No	-	-
Total	35	100

4.5.1.3 Information Security, Measures and Programs

The research aimed at establishing if there is a defined process in place to coordinate the implementation of information security, measures and programs. From analysis carried out all the respondents feel that there is defined process in place to coordinate the implementation of information security, measures and programs.

Table 4.12: Information security, measures and programs

Response	Frequency	Percent
Yes	35	100
No	-	0
Total	35	100

4.5.1.4 Extent of truth about the Organization

The research aimed at investigating the extent to which: senior management is committed to information security initiatives, from the respondent a mean of 4.06 was given which indicated that it is good; management understands the information security issues, from the respondent a mean of 3.51 was given which indicated that they moderately

understand; information security planning prior to implementation of new technologies is done ,from the respondent a mean of 4.09 was given which indicates it is to a good extent; integration between organization and information security, from the respondent a mean of 3.06 was given showing it is good; Information security is aligned with the organizations objectives, from respondent a mean of 3.69 was given showing it is in good alignment; executive and line management has ownership and accountability for implementing, monitoring and reporting on information security, from respondent a mean of 4.43 was given showing it is good.

Table 4.13: Understanding of organization aspects

Statement	Mean	Std. Deviation
Senior management is committed to information security initiatives	4.06	1.371
Management understands the information security issues	3.51	1.245
We do information security planning prior to implementation of new technologies	4.09	.853
There is integration between organization and information security	3.60	1.090
Information security is aligned with the organizations objectives	3.69	1.231
Executive and line management have ownership and accountability for implementing, monitoring and reporting on information security	4.43	.815

4.5.2 Integrity as a Result of IMIS

4.5.2.1 Comprehensive Information Integrity Awareness Programs in Place

The research aimed at establishing if comprehensive information integrity awareness programs are in place. From analysis 83% who are the majority says yes whereas 17% who are the minority said no.

Table 4.14: Comprehensive information integrity awareness programs

Opinion	Frequency	Percent
Yes	29	83
No	6	17
Total	35	100

4.5.2.2 Frequency of Back Up

The research aimed at investigating how frequently the organization does a backup. From analysis carried out 100% said daily.

Table 4.15: Frequency of organization doing back up

Frequency of meetings	Frequency	Percent
Daily	35	100
Weekly	-	-
Monthly	-	-
Quarterly	-	-
Total	35	100

4.5.2.3 Extent of Integrity of Organization

The research aimed at determining whether the organization: does appropriate employee education and awareness on information asset protection, from the respondent a mean of 4.34 was found which indicates that it's good; has consistent enforcement of data backup policies and standard, from the respondent mean of 3.91 was generated which shows it is good; has a very

high placement of information security within the organization hierarchy, from the respondent a mean of 4.29 which shows it is good; has disaster recovery planning budget, from the respondent a mean of 4.03 was generated which indicates that it is good; executive and line management have message with regard to system integrity priorities, from the respondent a mean of 4.06 was generated that shows it is good; IS department has the ability to cost-justify system integrity to the management, from the respondent a mean of 3.66 was generated that shows it is good; IS department apply generally accepted information security best practices /metrics, from the respondent a mean of 3.11 was generated showing it is average.

Table 4.16: Extent of integrity of organization

Statement	Mean	Std. Deviation
We do an appropriate employee education and awareness on information asset protection	4.34	1.282
The organization has consistent enforcement of data backup policies and standard	3.91	1.314
Very high placement of information security within the organization hierarchy	4.29	.957
We do disaster recovery planning budget for the organization	4.03	1.150
Executive and line management have message with regard to system integrity priorities	4.06	1.110

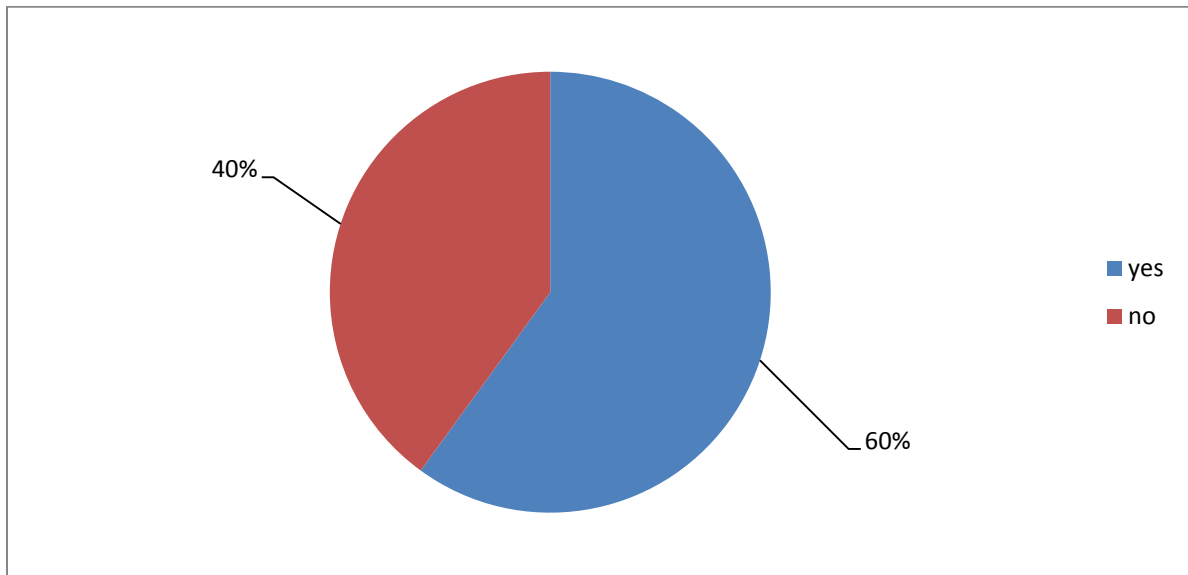
The IS department has the ability to cost-justify system integrity to the management	3.66	1.211
We apply generally accepted information security best practices /metrics	3.11	1.694

4.5.3 Availability of the System

4.5.3.1 Network Infrastructure in Place in the Organization

The research aimed at investigating whether the origination has full network infrastructure in place in the organization. The analysis carried out indicated that 60% said no whereas 40% said no.

Figure 4.4 Network infrastructures



4.5.3.2 Rating of the Organization

The research aimed at rating the organization performance in regard to: the system and network management, from the respondent a mean of 3.69 was generated showing it is good; organization quality of the internet services, from the respondent a mean of 3.09 was generated showing it is average; the organization performance System abilities to harmonize between different parts of the organization ,from the respondent a mean of

3.86 was generated showing it is good; System outages from the respondent a mean of 3.66 was generated showing it is good; to Network maintenance time and costs, from the respondent a mean of 3.77 was generated showing it is good; Migration to new ICTs a hardware and software version, from the respondent a mean of 2.37 was generated showing it is poor.

Table 4.17: Rating of organization

Statement	Mean	Std. Deviation
The system and network management	3.69	.796
Quality of the internet services	3.09	1.173
System abilities to harmonize between different parts of the organization	3.86	.879
System outages	3.66	.802
Network maintenance time and costs	3.77	1.215
Migration to new ICTs hardware and software versions	2.37	1.536

4.5.4 Accessibility of the System

4.5.4.1 Provision of regular and structured training to employees

The research aimed at investigating whether the organization provide regular and structured training to its employees on accessibility& policy of IMIS use

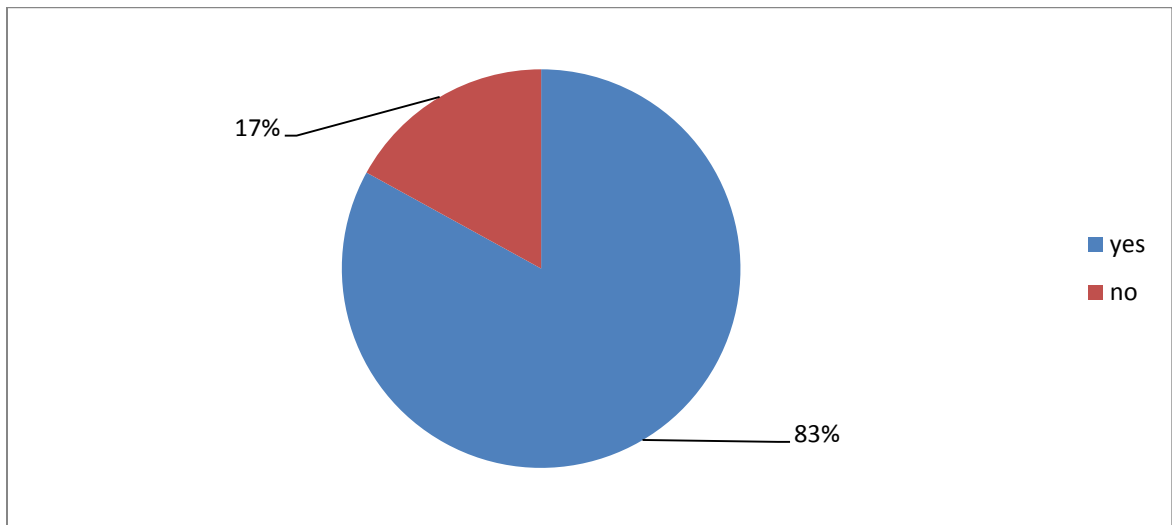
From the analysis carried out it was found that 89% who are the majority provide regular and structured training to its employees on accessibility and policy of IMIS use whereas 11% are the don't

Table 4.18: Regular and structured training

Response	Frequency	Percent
Yes	31	89
No	4	11
Total	35	100

4.5.4.2 Information security policy, measures and programs

Figure 4.5 Information security policy, measures and programs



The research aimed at investigating whether the organizations have defined process in place to coordinate the implementation of information security policy, measures and programs.

From the analysis carried out it was found that 83% who are the majority have defined process in place to coordinate the implementation of information security policy, measures and programs, whereas 17% who are the minority don't. this is as shown in figure above.

4.5.4.3 User Accessibility Requirements

The research aimed also at investigating whether relevant user accessibility requirements and policy specifically defined and documented in organizations. From the analysis carried out it was found that 87% who are the majority have relevant user accessibility requirements and policy specifically defined and documented organizations whereas 13% who are the minority have not.

Table 4.19: User Accessibility

opinion	Frequency	Percent
yes	31	89
no	4	11
Total	35	100

4.5.4.4 Effectiveness

The research aimed at investigating how effective: policies, procedures and guidelines are in reducing interruptions to business/work processes in organizations, from the respondent a mean of 3.69 was obtained which indicate that it is good; data encryption is in reducing interruptions to business/work processes in organizations, from the respondent a mean 2.57 was obtained which indicate that it is average; firewalls is in reducing interruptions to business/work processes in organizations, from the respondent a mean of 3.60 was obtained which indicate that it is good; intrusion detection systems are in reducing interruptions to business/work processes in organizations, from the respondent a mean of 3.80 was obtained which indicate that it is good; intrusion protection systems is in reducing interruptions to business/work processes in organizations, from the respondent a mean of 3.71 was obtained which indicate that it is good; user awareness training programs is in reducing interruptions to business/work processes in organizations, from the respondent a mean of 4.26 was obtained which indicate that it is good; user authentication systems/logical access control is in reducing

interruptions to business/work processes in organizations, from the respondent a mean of 4.14 was obtained which indicate that it is good; incident management process is in reducing interruptions to business/work processes in organizations, from the respondent a mean of 3.71 was obtained which indicate that it is good; physical security/access control systems is in reducing interruptions to business/work processes in organizations, from the respondent a mean of 3.94 was obtained which indicate that it is good.

Table 4.20: Interruptions to business/work processes in organizations

Statement	Mean	Std. Deviation
Policies, procedures and guidelines	3.69	1.430
Data encryption	2.57	1.092
Firewalls	3.60	1.035
Intrusion detection systems	3.80	.933
Intrusion protection systems	3.71	.860
User awareness training programs	4.26	.980
User authentication systems/logical access controls	4.14	1.089
Incident management process	3.71	.860
Physical security/access control systems	3.94	1.027

4.6 Benefits of IMS Implementing

The research aimed at investigating the extent to which the respondent agree on the benefits of implementation of IMS on service level in organization in respect to: protecting the organization from civil and legal liability as a result of information inaccuracy or the absence of due care, from the respondent a mean of 4.37 was obtained which indicate that to a good extent they agree; increasing predictability and reducing

uncertainty of organization operations by lowering information security -related risk to definable and acceptable levels, from the respondent mean of 3.97 was obtained which indicate that to a good extent they agree; ensuring that there is firm foundation for efficient and effective risk management, from the respondent a mean of 4.34 was obtained which indicate that to a good extent they agree; increasing level of assurance that critical decisions are not based on faulty information, from the respondent a mean of 4.09 was obtained which indicate that to a good extent they agree; decreasing likelihood of violation of privacy providing greater confidence when interacting with trading partners, from the respondent a mean of 4.06 was obtained which indicate that to a good extent they agree; enabling new and better ways to process electronic transaction thus reducing operational costs by providing predictable outcomes and mitigating risk factors that may interrupt the process, was found to be good as shown by a mean score of 4.26; organization have a competitive advantage over their competitors, was found that to a great extent they agree as shown by a mean of 4.14.

Table 4.21: Benefits of implementation of IMS

Statement	Mean	Std. Deviation
Protect the organization from civil and legal liability as a result of information inaccuracy or the absence of due care.	4.37	1.140
Increases predictability and reduces uncertainty of organization operations by lowering information security -related risk to definable and acceptable levels.	3.97	1.043
Ensures that there is firm foundation for efficient and effective risk management.	4.34	.802
Increases level of assurance tat critical decisions are not based on faulty information.	4.09	1.067
Decreases likelihood of violation of privacy providing greater confidence when interacting with trading partners	4.06	.968

Enables new and better ways to process electronic transaction thus reducing operational costs by providing predictable outcomes and mitigating risk factors that may interrupt the process.	4.26	.741
Enables organization to have a competitive advantage over their competitors.	4.14	.912

4.7 Comments

The most important role of an information system in an organization is to provide data to help executive management make decisions. Data is compiled through transaction processing or query routines built into the information system to access item and detail records. Through decision support programs, which are packaged as software routines, executive management can analyze several areas of an organization and create scenarios through the information system for a desired result. These results are defined in the organizations' objectives and goals to improve productivity.

4.8 Regression Analysis of the Findings

The researcher conducted a multiple linear regression analysis so as to determine service level in Non-Governmental Organizations in Mogadishu- Somalia and the four independent factors namely: confidentiality, integrity, availability and accessibility.

The regression equation was $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$

Where by Y =. Service level

X_1 = Confidentiality

X_2 = Integrity

X_3 = Availability

X_4 = Accessibility

Table 4.22 Model Summary

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	0.843	0.742	0.724	0.4216

a) Predictors: (Constant), confidentiality, integrity, availability, and accessibility.

b) Dependent variable: Service level in NGOs in Mogadishu- Somalia

The study used the R square. The R Square is called the coefficient of determination and tells us how the service level in NGOs in Mogadishu- Somalia varied with confidentiality of the system, integrity of the system, availability of the system, and IMIS accessibility. Further the four independent variables that were studied explain 74.2% of the factors affecting service level in NGOs in Mogadishu- Somalia as represented by R Squared (Coefficient of determinant). This therefore means that other factors not studied in this research contribute 25.8% of the factors affecting service level in NGOs in Mogadishu- Somalia.

Table 4.23 ANALYSES OF VARIABLES

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.72	9	1.302	44.231	.000(a)
	Residual	3.432	52	0.066		
	Total	15.152	61			

a) Predictors: (Constant), IMIS confidentiality, IMIS integrity, IMIS availability, and IMIS accessibility

b) Dependent Variable: service level in Non-Governmental Organizations (NGOs) in Mogadishu- Somalia

The study used ANOVA to establish the significance of the regression model from which an f-significance value of p less than 0.05 was established. The model is statistically significant in predicting how IMIS confidentiality, IMIS integrity, IMIS availability and IMIS accessibility affect service level in NGOs in Mogadishu- Somalia. This shows that the regression model has a less than 0.05 likelihood (probability) of giving a wrong prediction. This therefore means that the regression model has a confidence level of above 95% hence high reliability of the results.

Table 4.24 Coefficients Results

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.116	.186		0.623	.535
IMIS confidentiality	0.577	.068	.559	8.478	.000
IMIS integrity	0.157	.043	.257	3.676	.036
IMIS availability	0.082	.042	.301	2.252	.020
IMIS accessibility	0.021	.002	.245	6.906	.001

a) Predictors: (Constant), IMIS confidentiality, IMIS integrity, IMIS availability, and IMIS accessibility

b) Dependent Variable: Service level in Non-Governmental Organizations (NGOs) in Mogadishu- Somalia

The established regression equation was

$$Y = 0.116 + 0.577X_1 + 0.157X_2 + 0.082X_3 + 0.021X_4 + \varepsilon$$

The regression equation above has established that holding the influencing factors (confidentiality, integrity, availability and accessibility) constant, factors affecting service level in Non-Governmental Organizations in Mogadishu- Somalia will be 0.116. The findings presented also shows that taking all other independent variables at zero, a unit increase in confidentiality of the system will lead to a 0.577 increase in the scores of the service level in NGOs in Mogadishu- Somalia. A unit increase in IMIS integrity will lead to a 0.157 increase in service level in NGOs in Mogadishu- Somalia. On the other hand, a unit increase in IMIS availability will lead to a 0.082 increase in the scores of the service level in NGOs in Mogadishu- Somalia; and a unit increase in IMIS accessibility will lead to a 0.021 increase in the scores of the service level in NGOs in Mogadishu- Somalia. This infers that IMIS confidentiality influences the service level in Non-Governmental Organizations in Mogadishu- Somalia most followed by IMIS availability, IMIS integrity and then IMIS accessibility. The study also established a significant relationship between service level in NGOs in Mogadishu- Somalia and the independent variables; IMIS confidentiality ($p=0.00<0.05$), IMIS integrity ($p=0.036<0.05$), IMIS availability ($p=0.20<0.05$) and IMIS accessibility ($p=0.001<0.05$) as shown by the p values. The researcher dropped the regression model because $p>0.5$ and $t<1.96$. Therefore the restated model is as follows:

$$Y=0.577X_1+0.157X_2+0.082X_3+0.021X_4+ \varepsilon$$

4.8.1 Non-parametric correlation

A Spearman correlation is used when one or both of the variables are not assumed to be normally distributed. The values of the variables were converted in ranks and then correlated. The study correlated IMIS confidentiality, IMIS integrity, IMIS availability and the IMIS accessibility under the assumption that both of these variables are normal and interval.

Table 4.25 Correlations

			IMIS confidentiality	IMIS integrity	IMIS availability	IMIS accessibility
Spearman's rho	IMIS confidentiality	Correlation Coefficient Sig. (2-tailed) N	1.000 .617 61	.617 .000 61	.547 .000 61	.667 .000 61
	IMIS integrity	Correlation Coefficient Sig. (2-tailed) N	.617 .000 61	1.000 .437 61	.437 .000 61	.235 .001 61
	IMIS availability	Correlation Coefficient Sig. (2-tailed) N	.547 .000 61	.437 .000 61	1.000 .441 61	.441 .002 61
	IMIS accessibility	Correlation Coefficient Sig. (2-tailed) N	.667 .000 61	.235 .000 61	.441 .000 61	1.000 .617 61

The results suggest that the relationship between IMIS confidentiality and IMIS integrity (rho = 0.617, p = 0.000) is statistically significant. IMIS confidentiality and IMIS availability had a rho of 0.547 and a p value of 0.000 therefore denoting statistical significance. Similarly, the IMIS confidentiality and IMIS accessibility posted a rho of 0.667 with a p value of 0.000 therefore providing a statistical significance. IMIS integrity and IMIS availability had a rho of 0.437, p=0.000 further pointing to a statistical significance. On the same note, the IMIS integrity and the IMIS accessibility correlated at rho=0.235 and p=0.001.

This therefore is statistically significant. Finally, the IMIS availability and IMIS accessibility stood at a correlation of rho=0.441 and p= 0.002 revealing statistical significance.

4.9 Discussion of Findings

According to the study findings the extent to which: integration of IS has enabled Coordination between different parts of the organization, from the respondent mean of 4.77 was generated that shows a very good support; integration of IS has enabled Data and information access-using one single system throughout the organization. from respondent a mean of 4.43 was generated that shows a good support; integration of IS has enabled data and information access-using one single system throughout the organization, from respondent a mean of 4.51 was generated that shows a very good support; integration of IS has enabled the instant access to real time data on every process in the organization, from the respondent a mean of 3.97 was generated that shows a good support; integration of IS has enabled Standardized processes-the inbuilt logic of the installed system forces employees to carry out activities in a standardized manner, from the respondent a mean of 4.00 was generated that shows a good support; integration of IS has enabled the best practice of doing the process of activities.

Additionally from the respondent a mean of 3.89 was generated that shows a good support; integration of IS has enabled flexibility-automation of business process enables product customization and faster change in production, from the respondent a mean of 3.89 was generated that shows a good support; integration of IS has enabled Productivity appropriate IMIS support enables more efficient production, from the respondent a mean of 4.03 was generated that shows a good support. The above finds agree with the study of Hence according to Bianco (2001), for the “best case-scenario” includes benefits of business process improvements.

This study we found that the most important role of an information system in an organization is to provide data to help executive management make decisions. Data is compiled through transaction processing or query routines built into the information system to access item and detail records. Therefore according to the literature review these results approve (Rao et al., 2007) in that the concept of integration originates from a systems perspective: because trade-offs and wider ranging decisions can be made based on shared information and coordination.

Furthermore the study found that The four independent variables that were studied explain 74.2% of the factors affecting service level in Non-Governmental Organizations in Mogadishu- Somalia as represented by R Squared (Coefficient of determinant)and these factors are (IMIS Confidentiality, IMIS Integrity, IMIS Availability and IMIS Accessibility). Therefore this finding agrees McCumber (2005) factors which increase the performance of the system are: confidentiality, integrity, Availability and the Access of the system while in IMISs are well sustained that factors.

According to the study findings the senior management commitment to information security initiatives, executive and line management ownership and accountability for implementing, monitoring and reporting on information security is great, information security alignment with organization's objective and planning prior to implementation of new technologies is of great extent Management understanding of information security issues was found to be of a moderate extent. These findings concur with a study done by Buhl et al., (2008) in that IMS focuses on business needs and gives added values to the business because the company re-evaluates requirements and does what is good for the business. That is, the standards are interpreted more holistically in such a way that the company meets both the system requirements and the company's need. The overall missions and goals are established through a single management system.

According to the study findings the organization duty on doing appropriate employee education and awareness on information asset protection, consistent enforcement of data backup policies and standard, placement of information security within the organization hierarchy, disaster recovery planning budget for the organization, executive and line management having message with regard to system integrity priorities, ability to cost-justify system integrity to the management was found to be of great extent. Application of generally accepted information security best practices /metrics was found to be moderate. This was in line with a study done by Leeladhar, (2005) in that several management systems therefore exist in an organization for its proper running.

The study found that: the system and network management, system abilities to harmonize between different parts of the organization, system outages, network maintenance time and costs was found to be of great extent. Quality of the internet services, migration to

new ICTs hardware and software versions was found to be moderate. The study also found that policies, procedures and guidelines, firewalls, intrusion detection systems, intrusion protection systems, user awareness training programs, user authentication systems/logical access controls (Username & password, biometrics, tokens), incident management process, physical security/access control systems was found to be of great extent. This correlated with Baldi (1999) study in that integration serves the overall business needs of a company by reducing redundancies and conflicting elements that are commonly found when two or more separate systems are used.

The Study also found that the benefits of implementation of IMS on service level in organization in respect to: protecting the organization from civil and legal liability as a result of information inaccuracy or the absence of due care, from the respondent a mean of 4.37 was obtained which indicate that to a good extent they agree; increasing predictability and reducing uncertainty of organization operations by lowering information security -related risk to definable and acceptable levels, from the respondent.

Mean of 3.97 was obtained which indicate that to a good extent they agree; ensuring that there is firm foundation for efficient and effective risk management, from the respondent a mean of 4.34 was obtained which indicate that to a good extent they agree; increasing level of assurance that critical decisions are not based on faulty information, from the respondent a mean of 4.09 was obtained which indicate that to a good extent they agree; decreasing likelihood of violation of privacy providing greater confidence when interacting with trading partners, from the respondent a mean of 4.06 was obtained which indicate that to a good extent they agree; enabling new and better ways to process electronic transaction thus reducing operational costs by providing predictable outcomes and mitigating risk factors that may interrupt the process, was found to be good as shown by a mean score of 4.26; organization have a competitive advantage over their competitors, was found that to a great extent they agree as shown by a mean of 4.14. These findings agree (Griffith, 1999). Integrated management information systems researchers have empirically demonstrated that IMIS investments enhance firms' productivity, consumer welfare, and comparative advantage. Therefore the results of this study agree with the literature review.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter provides the summary of the findings from chapter four, and also it gives the conclusions and recommendations of the study based on the objectives of the study. The objectives of this study were to: determine the impact on confidentiality as a result of integrated management information systems at the NGOs in Mogadishu, to determine the impact on Integrity as a result of integrated management information systems at the NGOs in Mogadishu, to determine the availability of the integrated management information systems at the NGOs in Mogadishu and to determine how accessible the integrated management information systems are at the NGOs in Mogadishu.

5.2 Summary of the Findings

The study found that; the senior management commitment to information security initiatives, executive and line management ownership and accountability for implementing, monitoring and reporting on information security is great, information security alignment with organization's objective and planning prior to implementation of new technologies is of great extent Management understanding of information security issues was found to be of a moderate extent.

It was also found that the organization duty on doing appropriate employee education and awareness on information asset protection, consistent enforcement of data backup policies and standard, placement of information security within the organization hierarchy, disaster recovery planning budget for the organization, executive and line management having message with regard to system integrity priorities, ability to cost-justify system integrity to the management was found to be of great extent. Application of generally accepted information security best practices /metrics was found to be moderate.

It was also found that: the system and network management, system abilities to harmonize between different parts of the organization, system outages, network maintenance time and costs was found to be of great extent. Quality of the internet

services, migration to new ICTs hardware and software versions was found to be moderate. The study also found that policies, procedures and guidelines, firewalls, intrusion detection systems, intrusion protection systems, user awareness training programs, user authentication systems/logical access controls (Username & password, biometrics, tokens), incident management process, physical security/access control systems was found to be of great extent. Data encryption was found to be of moderate extent.

The enterprises agree that IMS :Protects the organization from civil and legal liability as a result of information inaccuracy or the absence of due care, increases predictability and reduces uncertainty of organization operations by lowering information security –related risk to definable and acceptable levels, ensures that there is firm foundation for efficient and effective risk management, increases level of assurance that critical decisions are not based on faulty information, decreases likelihood of violation of privacy providing greater confidence when interacting with trading partners , enables new and better ways to process electronic transaction thus reducing operational costs by providing predictable outcomes and mitigating risk factors that may interrupt the process and enables organization to have a competitive advantage over their competitors to a great extent benefits to these organizations.

5.3 Conclusions

From the study the researcher concludes that the integration of information systems at the NGOs in Mogadishu has a positive impact on the confidentiality of the business affairs this is from the fact the fact that the organization gets to a position where it is able to safeguard its secrets maybe from competing firms who can take advantage of the situation if not well safeguarded.

The study also concludes that integration of information system in the organization brings about positive impacts among them being ensuring that the system is not corrupted e.g through hacking or loss of data by embracing such activities like data backups. From the study the researcher also conclude that; integrated management information systems at the NGOs in Mogadishu is already available and the organizations are migrating to new

ICTs soft wares system versions ,the internet service is doing well and the fact that the system can harmonize between different parts of the organization.

The study finally concludes that; accessibility of the information system is well catered for by the organizations providing regular and structured training to its employees on accessibility and policy of IMIS use polices procedures and guidelines are well defined, there is to great extent data encryption, user authentication systems/logical access controls (Username and password, biometrics, tokens) is already working well.

5.4 Recommendations

The study recommends that since integration management information systems has impact on service level in non-governmental organizations. The organizations should take a step ahead in ensuring management understands the information security issues, there is integration between organization and information security, Information security is aligned with the organizations objectives to enhance strategic management.

The study also recommends that data encryption, migration to new ICTs hardware and software system versions, organization to have consistent enforcement of data backup policies and standard should be employed to enhance system security, improved confidentiality ,improvement on integrity of the system and access of integrated management information systems at the NGOs. The study further recommends that the government should take critical legislative measures in ensuring that information system are given a priority by establishment of such facilities like fiber optics, cost of acquiring the soft wares and hard wares are kept as low as possible.

The study recommends that the government should have the primary responsibility of advocating incorporation of information system in organization to enhance effectiveness and efficiency in their daily operations. The study recommends that since technological changes affects the growth of enterprises to a very great extent; the government should intervene in solving the problems of unawareness of new technology, unfamiliarity with new technologies and the new technology not being affordable by maybe subsidizing on the cost of adoption.

5.5 Suggestions for Further Research

The study has explored the impact of integrated management information systems on service level in non- governmental organizations in Mogadishu Somalia and established that Coordination between different parts of the organization, data and information access-using one single system throughout the organization, the instant access to real time data on every process in the organization standardized processes-the inbuilt logic of the installed system forces employees to carry out activities in a standardized manner, the best practice of doing the process of activities, flexibility-automation of business process enables product customization and faster change in production and established that it is of great significance

The business however in Somalia differs from the fact that there are other forms of business ownership such as state corporations and cooperative unions. This warrants the need for another study which would ensure generalization of the study findings for all the businesses and hence pave way for new policies. The study therefore recommends another study be done with an aim to investigate the factors influencing the growth of information system integration in Somalia

Further a study should also be carried out to investigate the factors influencing the growth of business enterprises in Somalia.

5.6 Limitations of the study

A limitation for the purpose of this study was anything that hindered the achievement of this objective and in the generation of the research findings.

The first limitation included time constraint. The study was limited in the time as the research was required to complete and submit a final report by required date.

Another limitation of this study was the inaccessibility of some target organization by security issue since I have collected the data in Mogadishu. There were also other different challenges which I cannot mention all of them here since most of the people can understand the situation in Somalia.

REFERENCES

- Adventist development and relief agency, ADRA (2010). *www.adra.com/about us.html*
- Antonelli, C. Ed. (1992). *The Economics of Information Networks*, Amsterdam, North-Holland.
- Biano, P. (2001). *Evaluation of Security Risks Associated with Networked Information Systems. Unpublished Master's Thesis, Royal Melbourne Institute of Technology.*
- Calder, A. (2005). *A Business Guide to Information Security: How to Protect your Company's I.T. Assets, Reduce Risks and Understand the Law*, Kogan Page.
- Calder, A. and Watkins, S. (2005). *IT Governance: A Manager's Guide to Data Security and BS 7799/ISO 17799*, 3rd Edition, Kogan Page.
- Cattell, R. (2008), *The Scientific Use of Factor Analysis in Behavioral and Life sciences*, Plenum Press, New York, London.
- Charmayne, C. (2001). *Computer Crime, Vulnerabilities of Information Systems, and Managing Risks of Technology Vulnerabilities*, Retrieved January 18, 2008 From <http://www.profhelp.com>
- Chesla, A. (2004). *Information Security: A Defensive Battle. Information Systems Security, January/February 2004. Pg 24-32.*
- Cole, E. and Conley, J. W. (2005). *Network Security Bible, John Wiley & Sons.*
- Cooke, F.L. (2000). *Implementing TPM in plant maintenance: some organizational barriers: International Journal of Quality & Reliability Management*, Vol. 17 No.9, pp.1003-16.
- Cooper, W. & Schindler, D. (2003). *Approaches to Social Research*. New York: Oxford University Press.
- Cronin, J and Taylor, S A (1992). *Measuring Service Quality: A Reexamination and Extension*, *Journal of Marketing*, 56(July), 55-67.
- Dale, B.G. (2001). *Integrated management systems: a model based on a total quality approach*. *Managing Service Quality*, Vol. 11, part 5, pp. 318-330.
- Drucker, P.F. (2003). *Management Challenges for the 21st Century*, Harper Business.

- Garg, A., Curtis, J., and Halper, H. (2003). The Financial Impact of IT Security Breaches: What Do Investors Think? *Security Management Practices, March/April 2003*, 22-33.
- Griffith, A. (1999). Developing an integrated management system for quality, safety and environment.
- Griffith, A. (2000). Integrated management systems: a single management system solution for project control? *Engineering, Construction and Architectural Management, Vol. 7, no 3, pp. 232-240*.
- Joanbb, (2008). The Problems Caused by Lack of Information Systems Integration.
- Kairab, S. (2005). A Practical Guide to Security Assessments, Auerbach Publications.
- Kamau E M, (2012). The effect of integrated financial management Information systems on the financial management of public sector in Kenya: *a case of the Kenyan Ministries*.
- Kessler, C. G (1998). An Overview of cryptography, Retrieved on June 08, 2009
From <http://www.garykessler.net/library/crypto.html>
- Laudon, K.C., Laudon, J. (2002). Management Information Systems, Organization and technology.
- Leeladhar, V. (2005). Challenges in Banking Security. *Bank of International Settlements Review*.
- Lucey, T., (1997). Management Information Systems: London: *Continuum McCumber, J. (2005). Assessing and Managing Security Risks in IT Systems*, Auerbach Publications.
- McGarty, T.P. (1992). Alternative networking architectures: Pricing, policy, and competition," in: *Building information infrastructure, B. Kahin (ed.)*, McGraw-Hill Primis, New York.
- Mackau, D. (2003). SME integrated management system: a proposed experiences model. The TQM Magazine, Vol. 15, no. 1, pp. 43-51.
- McCumber, J. (2005). Assessing and Managing Security Risks in IT Systems, Auerbach Publications.

- Merkow, M.S. and Breithaupt, J. (2000). *The Complete Guide to Internet Security*, AMACOM.
- Monteiro, E. (1998). *Scaling Information Infrastructures: The Case of Next-Generation IP in the Internet*, *The Information Society* (14).
- Mugenda, Olive M and Abel G. Mugenda (2003). *Research methods: quantitative and qualitative approaches*
- Olivia, M.L (2004). *Information Technology Security: Advice from Experts*, IGI Publishing.
- Osborne, M. (2006). *How to Cheat at Managing Information Security*, Syngress Publishing.
- Parasuraman, A, Zeithaml, V A and Berry, L L (1985). "A Conceptual Model of Service Quality and Its Implications for Future Research," *Journal of Marketing*, 49 (Fall), 41-50.
- Parasuraman, A, Zeithaml, V A and Berry, L L (1988). "SERVQUAL: A Multiple Item Scale for Measuring Consumer Perceptions of Service Quality," *Journal of Retailing*, 64(1), 12-40.
- Parker, D. B. (1998). *Fighting Computer Crime: A New Framework for Protecting Information*, John Wiley & Sons.
- Rao, H. R., Gupta, M and Upadhyaya, S. J. (2007). *Managing Information Assurance in Financial Services*, IGI Publishing.
- Roper, C., Grau, J. and Fischer, L. (2006). *Security Education, Awareness and Training: From Theory to Practice*, Butterworth-Heinemann.
- Schifreen, R, (2006). *Defeating the Hacker: A Non-Technical Guide to Computer Security*. John Wiley & Sons (UK).
- Warkentin, M. and Vaughn, R. B. (2006). *Enterprise Information Systems Assurance and Systems Security: Managerial and Technical Issues*, IGI Publishing.
- Wylder, J. (2004). *Strategic Information Security*, Auerbach Publicatio

APPENDICES

Appendix 1: Questionnaire

Date: ____/____/____

Part A: General Information

1. Name of the NGO
2. Name of the Respondent (Optional)
3. **Gender**
Male Female
4. Age
Below 21-25 years 26- 30 years 30-35 years
36- 40 years 40- 50 years above 50 years
5. Level of education
Primary Secondary
College University other please specify
6. No of years worked in the organization
Below One Yr 1- 2 Yrs 2-4 Yrs
4-6 Yrs 6- 10 Yrs Above 10 Yrs
7. Which of the following reflect most your current job profile/title/role?
Chief Information Officer IT Manager/Consultant
Chief Security Officer Network/Systems Administrator
Other (Please specify) _____
8. What is the total number of employees in your organization: Please tick one
Less than 25 26 – 50
51-75 76-100 above 100

PART B: Level of Integration Management Information Systems.

9. How many years has your organization been in operation?
 Less than 5 years [] 5-10 years [] 10-15 years [] more than 15 years []
10. Which Type of Information System does your organization use? Tick appropriate box.
 Management Information Systems [] Integrated Information Systems []
 Office Automation Systems [] Transaction Processing Systems []
 Decision Support Systems [] other (Please specify).....
11. How do you rate your NGO dependence on information system?
 Very High [] High []
 Low [] Not at all []
12. (a) Are there formal meetings for structure to evaluate the impacts of IS in your organization? Yes [] No []
 (b) If yes, what is the frequency of the meetings?
 Weekly [] Monthly [] Quarterly [] Yearly [] Ad hoc []
13. To what extent has integration of your IS enabled the following in your organization? ? Use the scale 1-5 where 5= very-good, 4= good, 3= average, 2= poor and 1=very-poor. Please tick the appropriate box

	VP	P	A	G	VG
	1	2	3	4	5
Coordination a between different parts of the organization					
Data and information access-using one single system throughout the organization					
The instant access to real time data on every process in the organization					
Standardized processes- the inbuilt logic of the installed system forces employees to carry out activities in a standardized manner					
The best practice of doing the process of activities					
Flexibility- automation of business process enables product customization and faster change in production					
Productivity appropriate IMIS support enables more efficient production					

PARTC: Service Level

SECTION A: Confidentiality of the system

14. Are comprehensive information confidentiality awareness programs in place?

Yes No

15. Does the Organization provide regular and structured training to its employees on confidential& policy of IMIS use?

Yes No

16. Is there a defined process in place to coordinate the implementation of information security policy, measures and programs?

Yes No

17. To what extent are the following true for your organization? Use the scale 1-5 where 5= very-good, 4= good, 3= average, 2= poor and 1=very-poor. Please tick the appropriate box

	VP	P	A	G	VG
	1	2	3	4	5
Senior management is committed to information security initiatives					
Management understands the information security issues					
We do information security planning prior to implementation of new technologies					
There is Integration between organization and information security					
Information security is aligned with the organization's objectives					
Executive and line management have ownership and accountability for implementing, monitoring and reporting on information security					

SECTION B: Integrity of the system

18. Are comprehensive information Integrity awareness programs in place?

Yes No

19. How frequently does the organization do a Backup?

Daily [] Weekly [] Monthly [] Quarterly [] yearly []

20. To what level are the following true for your organization? Use the scale 1-5 where 5= very-good, 4= good, 3= average, 2= poor and 1= very-poor. Please tick the appropriate box

	VP	P	A	G	VG
	1	2	3	4	5
We do an appropriate employee education and awareness on information asset protection					
The organization have consistent enforcement of data backup policies and standard					
Very high placement of information security within the organization hierarchy					
We do disaster recovery planning budget for the organization					
Executive and line management have message with regard to system integrity priorities					
The IS department has the ability to cost-justify system integrity to the management					
We applying generally accepted information security best practices/metrics					

SECTION C: Availability of the System

21. Do you have a full network infrastructure in place in the organization?

Yes [] No []

22. Please rate your organization performance for the following factors? Use the scale 1-5 where 5= very-good, 4= good, 3= average, 2= poor and 1= very-poor. Please tick the appropriate box.

	VP	P	A	G	VG
	1	2	3	4	5
The System and network management					
Quality of the internet services					
System abilities to harmonize between different parts of the organization					
System outages					
Network maintenance time and costs					
Migration to new ICTs hardware and software system versions					

SECTION D: Accessibility of the System

23. Does the Organization provide regular and structured training to its employees on accessibility & policy of IMIS use?

Yes No

24. Is there a defined process in place to coordinate the implementation of information security policy, measures and programs?

Yes No

25. Are relevant of user accessibility requirements and policy specifically defined and documented in your organization?

Yes No

26. How effective are the following in reducing interruptions to business/work processes in your organization? Use the scale 1-5 where 5= very-good, 4= good, 3= average, 2= poor and 1= very-poor. Please tick the appropriate box.

	VP	P	A	G	VG
	1	2	3	4	5
Policies, procedures and guidelines					
Data Encryption					
Firewalls					
Intrusion Detection Systems					
Intrusion Protection Systems					
User Awareness training programs					
User Authentication Systems/ logical Access Controls (username & password, biometrics, tokens)					
Incident management process					
Physical Security /Access control Systems					

PART D: IMIS and Service Level

27. To what extent do you agree with the following statements as benefits of implementation of IMIS on service level in your organization? Use a scale of 1-5 where; 5 Very great extent, 4 Great extent, 3 Moderate extent, 2 Little extent, 1 No extent

Statement	1	2	3	4	5
Protects the organization from civil and legal liability as a result of information inaccuracy or the absence of due care					
Increases predictability and reduces uncertainty of organization operations by lowering information security-related risks to definable and acceptable levels					
Ensures that there is firm foundation for efficient and effective risk management					
Increases level of assurance that critical decisions are not based on faulty information.					
Decreases likelihood of violation of privacy providing greater confidence when interacting with trading partners					
Enables new and better ways to process electronic transactions thus reducing operational costs by providing predictable outcomes and mitigating risk factors that may interrupt the process					
Enables organizations to have a competitive advantage over their competitors					

28. Please provide any other additional information that you feel is important in this research that regards information system integration in your organization.

.....

.....

.....

.....

THANK YOU FOR YOUR PARTICIPATION

Appendix 2:

List of NGOs Working in Somalia (2013)

1	AAH-I	Action Africa Help International
2	AAIS	Action Aid International Somaliland
3	ACTED	Agency for Technical Co-Operation and Development
4	Adeso	African Development Solutions
5	ADO	Agricultural Development Organization
6	ADRA Somalia	Adventist Development and Relief Agency Somalia
7	AET	Africa Educational Trust
8	AFSC	American Friends Service Committee
9	APD	Agency for Peace and Development
10	ARAO	African Rural Advancement Organization
11	ARC	American Refugee Committee
12	AS	Aadamiga Somalia
13	CA	CHRISTIAN AID
14	CARE	Care-Cooperative Assistance and Relief Everywhere
15	Caritas Switzerland	
16	CCM Italy	Comitato Collaborazione Medica
17	CEFA	European Committee for Training and Agriculture
18	Cesvi	
19	CISP	International Committee for the Development of Peoples
20	Concern Worldwide Somalia	Concern Worldwide
21	COOPI	Cooperazione Internazionale
22	COSV	
23	CRS	Catholic Relief Services
24	DRC	Danish Refugee Council
25	FCA	Finn Church Aid
26	FERO	Family Empowerment and Relief Organisation
27	HI	Handicap International
28	HIJRA	Humanitarian Initiative Just Relief Aid

29	HISAN	Handicap Initiative Support and Network
30	IAS	International Aid Services
31	IDF	Integrated Development Focus
32	IMC	International Medical Corps
33	Internews	Internews Somalia
34	Interpeace	International Peacebuilding Alliance
35	INTERSON	Intersos Humanitarian Aid Organisation
36	IRC	International Rescue Committee
37	IRI	INTERNATIONAL REPUBLICAN INSTITUTE
38	IRW	Islamic Relief Worldwide
39	ISF	International Solidarity Foundation
40	JCCP	Japan Center for Conflict Prevention
41	JF	Juba foundation
42	KISIMA	KISIMA Peace & Development Org
43	KRD	KAALO Relief and Development
44	LIFE International	Local Initiatives For Education International
45	MAG	Mines Advisory Group
46	MC	Mercy Corps
47	MdM	MEDECINS DU MONDE-FRANCE
	MEDAIR	
48	(Somalia/Somaliland)	
49	MERLIN	Medical Emergency Relief International
50	NAGAAD	NAGAAD NETWORK
51	NCA	Norwegian Church Aid
52	NDI	National Democratic Institute for International Af
53	NNM	Noleeynta Naruurada Mustaqbalka
54	NPA	NORWEGIAN PEOPLES AID – HOA
55	NRC	NORWEGIAN REFUGEE COUNCIL
56	OX	Oxfam Novib
57	OXGB	Oxfam GB Somalia
58	PAH	Polish Humanitarian Action

59	PartnerAid	
60	PENHA	Pastoral and Environmental Network in the Horn of Africa
61	Progressio	
62	PSI	Population Service International
63	PSR - Finland	Physicians for Social Responsibility
64	RI	Relief International
65	SA	Somali Aid
66	Save the Children Somalia	
67	SHILCON	SHILALE REHABILITATION AND ECOLOGICAL CONCERN
68	SI	Solidarites international
69	STS	STS International Solidarity
70	SW	Safer world
71	SWISSO - KALMO	
72	Tearfund	
73	TN	TERRA NUOVA
74	Trocaire	
75	VSF-Germany	Veterinaires Sans Frontieres Germany
76	VSF-Suisse	Veterinaires Sans Frontieres Suisse
77	WASDA	Wajir South Development Association
78	WCDO	World Concern International
79	WHH (GAA)	Welthungerhilfe (German Agro Action)
80	WRRS	Wamo Relief and Rehabilitation Services
81	WVS	World Vision Somalia

Source: The Somalia NGO Consortium (2013) www. <http://somalangoconsortium.org>

