

**INFLUENCE OF INFORMATION COMMUNICATION AND  
TECHNOLOGY TOOLS ON THE PERFORMANCE OF RELIEF AID  
PROJECTS IN KENYA: THE CASE OF RED CROSS ORGANIZATION  
IN NAIROBI COUNTY**

**BY**

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Requirements for the Award of the Degree of Master of Arts in Project  
Planning And Management, University of Nairobi**

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## DECLARATION

This Research Project Report is my original work and that it has never been submitted for a degree in any other university or college for examination/academic purposes.

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Date.....

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**L50/69311/2013**

This Research Project Report has been submitted for examination with my approval as the  
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## **DEDICATION**

This research report is dedicated to my husband Paul Okelo and my sons: Alvin, Jason and Darrel. One would never ask for a better family than what you have been to me. I wish you luck in all that you do.

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## **ABBREVIATIONS AND ACRONYMS**

<b>DOI</b>	Diffusion of Innovations
<b>ERP</b>	Enterprise Resource Planning System
<b>ICT</b>	Information Communication Technology
<b>PERT</b>	Project Evaluation and Review Technique
<b>SMES</b>	Small and Medium Size Enterprises
<b>WBS</b>	Work Breakdown Structure

## ABSTRACT

The growing demand for development effectiveness is largely based on the realization that producing good “deliverables” is not enough. Efficient or well-managed projects and outputs will lose their relevance if they yield no discernible improvement in development conditions and ultimately in peoples’ lives hence the need for monitoring and evaluation of projects. The project management phases of planning, appraisal, implementation, monitoring, commissioning, termination and evaluation are essential for project performance. In this regard, it is vital for project managers to understand the best ways with which to improve the management of each of the phases. In project monitoring, the use of information communication technology (ICT) is useful because it helps enhance information collection, storage and dissemination as well communication between the project participants. The purpose of this study therefore was to find out the influence of the use of ICT in project monitoring on the performance of relief aid projects in Kenya. The study intended to find out if the adoption of ICT tools during project monitoring influences the performance of relief aid projects at Red Cross Society of Kenya. As such, the study evaluated different ICT tools’ use and the performance of projects at the Red Cross Society of Kenya. The study used a descriptive research design and stratified random sampling to study the 88 respondents. Primary data was gathered using a questionnaire which was then followed by a detailed research procedure to ensure credibility and accuracy in the data obtained. The data that was collected was then edited, coded, transcribed and then cleaned. The Statistical Package for java script was used in data analysis and the results were presented in frequency and tables. A regression analysis was also done on the responses to determine the extent of the relationship between ICT tools use in project monitoring and the performance of relief aid projects at the Kenya Red Cross Organization in Nairobi Region. The study showed that the use of ICT tools during project monitoring does indeed influence the performance of Red Cross projects. There is a correlation between the ICT tools’ use and the project performance. The regression model shows that the use of ICT tools during monitoring is significantly related to the project performance by various coefficient values a constant of 3.974. Based on the findings, the study recommended that The Kenya Red Cross organization should incorporate ICT tools in project monitoring for the success of the project performance.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background to the Study

The success of project performance depends partly on the project management approach used during planning, implementation and commissioning. Project management discipline helps implementers of projects realize good outcomes which include timely delivery, working within budget and coming up with deliverables that meet the intended utility functions. The project management phases of planning, appraisal, implementation, monitoring, commissioning, termination and evaluation are essential for project performance. In this regard, it is vital for project managers to understand the best ways with which to improve the management of each of the phases. In project monitoring, the use of information communication technology (ICT) is useful because it helps enhance information collection, storage and dissemination as well communication between the project participants (Walker,2015). This proposal intends to study the influence of the use of ICT in project monitoring on the aids' programs' project performances.

Project monitoring is the observation and supervision for the people in the management team to detect and to react appropriately to the deviation and changes to project plan. Project monitoring is a phase that should be carried out by the project manager. Projects should be monitored against the cost, time and quality performance. The project manager should ensure that the time allocated for each task has been used and no lagging should be reported. As well, each task should not have a cost overrun. In project monitoring, there is a comparison of the actual versus the planned outcomes during the project implementation. Communication, collecting and sharing of information is one of the ways that can be used to enhance success of monitoring activities in projects. ICT can be an essential tool in monitoring of projects (Walker, 2015).

ICT refers to technology used to handle information and aid communication. It also refers to the amalgamation of computing and telecommunications technologies, including the Internet, which are the matrix within which information and digital media are created, distributed and accessed. Information and Communications Technology features comprise basically of: Information access and dissemination over the Internet and wireless computing.

Communication features including landline and mobile telephones, wireless communication, voice over Internet communication or voice mail and facsimile. Computer hardware such as computers, printers, scanners, faxes, modems, networks and software which includes programs for accounting, spreadsheets, data processing enterprise resource planning systems (ERP) among others (D'Atri, Ferrara, George, & Spagnoletti, 2011).

All project managers and other stakeholders are interested in the performance of their projects. The project outcomes can be used to determine their overall performances. Different success criteria can be used to evaluate the performance of a project. These criteria include technical performance, efficiency of execution, managerial and organizational implications, personal growth and manufacturer's ability and business performance. Time, quality and cost of implementation of the project are the traditional measures that were used to measure the performance of projects. Depending on the nature of the project, the three variables can be used in isolation or they can be mixed with the other stated indicators to evaluate the success of the project outcomes (Turner, 2014).

The planned goals and objectives of a project define the scope. The project scope is thus used to determine its performance. The areas and processes affected by the project are defined as its scope, which needs to be clearly understood by all stakeholders; therefore, the scope of the project should not be changed without the client's approval, which will also require new estimates of costs and new plans. The goals of the project are normally determined by the client, but these need to be communicated clearly to the project team, and particularly the project manager. Therefore, once the goals are clear, the project manager can establish the technical and business objectives of the project that will contribute to meeting these goals, which will inform the detailed planning for the project. From this understanding, the project manager is able to come up with the required monitoring approaches (Kerzner, 2013).

The application of ICT in implementation of projects has been documented by various authors. An example of such use was documented where ICT was used in implementation of education programs in different countries. In Vadodara, India, in 2000, 100 primary schools were each provided with four computers. A controlled experiment commenced in 2002–03 and ran for two years. Half the schools were randomly allocated with training and educational software. Students in those schools played educational computer games for two hours a week and scored significantly higher on mathematics tests than students in the control schools. The

bottom group of students benefitted most, with girls and boys benefitting equally (Abhijit et al., 2007).

An analysis of learning outcomes from the Khanya project in South Africa showed a positive relationship between use of the ICT-based Master Math program and mathematics scores on standardized tests (James and Miller, 2005). The analysis was controlled, with comparisons made between a random sample of experimental and control schools. The study found that scores for learners on the ICT-based mathematics programs were significantly better than for other students. Controlled experiments from the United States, Kenya and Uganda also showed positive impacts on student learning arising from some types of use of computers in specific school subjects, while more general availability and use of computers at school did not affect student learning (Kozma, 2005).

### **1.1.1 Kenya Red Cross Organization**

The eleventh Regional workshop by the Kenya Red Cross organization identified Poor Communications as a major challenge facing the organization. There was very poor communication within the sector. The majority of the volunteers have little or no access to reliable email and internet connections; they receive almost no literature on development issues and are generally out of touch with issues of global, regional and national importance. Their lack of understanding of the difference between the Board and Council is just one example of the knowledge gaps that exist.. It is therefore necessary to investigate influence of information communication & technology tools in project monitoring on the performance of relief aid projects in by the Kenya Red Cross Organization

### **1.2 Statement of the Problem**

The project monitoring phase is critical to the success of the project outputs and outcomes. Tools used in the project monitoring process partly contribute to the success of this phase. The success of the project monitoring phase is linked to the project performance. It is thus useful to understand the link between project monitoring and project performance. Such a link can better be understood by focusing on the relationship between the tools used in project monitoring and the project performance. Project monitoring process uses ICT tools to ensure the success of the project phase.

ICT tools have been used before in project monitoring phases. These tools are used for communication between the project implementing teams and other project stakeholders. They are also used for information gathering, storing, retrieval, tracking and analysis. All these processes are aimed at enhancing the performance of projects(D'Atri, *et al*, 2011). The relationship between the use of ICT in project management and performance has been an attractive area of study to researchers. Studies have been carried out with the purpose of establishing the kind of relationship that exists between the use of ICT and the performance of projects.

A study was carried out by Matambalya& Wolf (2001) to evaluate the role of ICT on the performance of small and medium size enterprises (SMEs) in Kenya and Tanzania. In the study, the authors sampled 300 SMEs in Kenya and Tanzania. The study found out that the use of ICT by SMEs in Kenya and Tanzania had increased over time. Fixed line phones' use had reached a saturation point but it was lower in Kenya than in Tanzania. The percentage use of mobile phones was increasing but was more prevalent in Kenya than in Tanzania. It was found that the enterprises which use ICT had performed better than those that did not use the ICT tools. In the study, it was found that 88 % of the users who adopted the ICT increased management efficiency while 76 % of the users who adopted the same improved their competitiveness. Mobile phones were considered to contribute significantly to regional market expansion by most enterprises, followed by fixed phones and faxes.

Ahuja *et al* (2009) carried out a study aiming to evaluate the adoption of ICT tools in management of construction projects. The study analyzed factors that affected adoption of ICT at three levels which included the industry, the organization and the people. This focused on the SMEs. Perception was found to be one of the factors that negatively affected the adoption of ICTs in SMEs. This in turn made the low uptake of ICT use to negatively affect the performance of companies. Other issues like lack of adequate infrastructure were also identified. Here, it was found that poor ICT infrastructure hindered adoption of better ICT services which in turn negatively affected the business performance of the SMEs.

From these findings of the studies discussed in this section, it is clear that ICT has some influence on the performance of projects. However, these findings are not adequate to address the issue of the use of ICT in project monitoring and its effects on the performance of projects. Such a question can be solved by carrying out a study with a specific aim of linking ICT use in monitoring of projects and the performance of the resultant deliverables. This proposal thus seeks to carry out a study with an aim of analyzing the influence of the use of ICT tools in project monitoring on the performance of relief aid projects.

### **1.3 Purpose of the Study**

The study was to establish the influence of information communication and technology tools in project monitoring on the performance of relief aid projects in Kenya. As such, the study evaluated different ICT tools' use and the performance of projects at the Red Cross Society of Kenya.

### **1.4 Objectives of the Study**

The objectives of this research were:

1. To establish the extent to which utilization of electronic communication tools in project monitoring influence the performance of relief aid projects by the Kenya Red Cross Organization in Nairobi
2. To ascertain the influence of cost tracking tools in project monitoring on the performance of relief aid projects by the Kenya Red Cross Organization in Nairobi
3. To establish the extent to which utilization of time tracking tools in project monitoring influence the performance of relief aid projects by the Kenya Red Cross Organization in Nairobi
4. To establish the influence of the use of quality assurance tools in project management on the performance of relief aid projects by the Kenya Red Cross Organization in Nairobi



## **1.5 Research Questions**

The following were the research questions for the study:

1. To what extent does the utilization of electronic communication tools in project monitoring influence the performance of relief aid projects?
2. What is the influence of cost tracking tools in project monitoring on the performance of relief aid projects?
3. To what extent does the utilization of time tracking tools in project monitoring influence the performance of relief aid projects?
4. To what extent does the use of quality assurance tools in project monitoring influence the performance of relief aid projects?

## **1.6 Research Hypothesis**

Before carrying out this study, there were four hypotheses to the research:

- H<sub>1</sub>:** The use of electronic communication devices in project monitoring influences the performance of relief aid projects
- H<sub>1</sub>:** The use of cost tracking tools in project monitoring influences the performance of relief aid projects
- H<sub>1</sub>:** The adoption of time tracking tools in project monitoring influences the performance of relief aid projects
- H<sub>1</sub>:** The use of quality assurance tools in project monitoring influences the performance of relief aid projects

## **1.7 Significance of the Study**

The results of this study may be useful to various stakeholders in the field of project management. Among the beneficiaries of the study include the government, nongovernmental organizations, academicians and researchers and the Red Cross Society. The statistics of the research might be of use to the government because they can act as lesson sources of how the state can incorporate ICT tools in project monitoring for the success of the project performance.

The non-governmental bodies might find the research findings useful because the information can be used in implementing projects in other community driven development plans which may not be necessarily funded by the government. The non-governmental bodies which

collaborate with the local development parties use the information in deciding how to contribute to the project efforts in the country.

The Red Cross Society of Kenya may be a direct beneficiary of these findings. With the study being carried out on the projects in the country, this might form an evaluation guide where the management committee may use the findings to make a reflection of how they have performed in the past projects and make room for improvement. The results of this study are therefore a useful evaluation tool for the past projects in Kenya. The academic fraternity will also benefit from the studies. It will use the research findings to come up with other research hypotheses which can be a basis for further studies.

### **1.8 Basic Assumptions of the study**

The study assumed the subjects of the study were willing to respond to the questions raised in the questionnaire. There were no changes in the composition of the target population that would have been fundamental enough to affect the effectiveness of the study sample. The study was carried out as planned and the researcher was in good health to accomplish all the objectives of this study.

### **1.9 Limitations of the study**

One of the major limitations was in terms of respondents ready and willing to respond to enquiries on the research. The respondents were assured of anonymity to gain their trust.

Limited accessibility to information at the Kenya Red Cross offices due to confidentiality being maintained strained accessibility to data. By working closely with the officials from the relevant departments, the researcher gained their trust by assuring them that sensitive information will not be published of this study. The relevant departments were also assured that there is more to gain than loose from the outcome of this research. The researcher allowed the respondents adequate time with the questionnaires to complete at their own time.

### **1.10. Delimitations of the study**

This study was delimited to the Kenya Red Cross Organization, Nairobi. The Nairobi branch has 291 volunteers who participate in different programs of the Red Cross Organization. Stratified random sampling technique was used to get the population sample for the study

## 1.11 Definition of significant terms used in the study

<b>Communication tools</b>	Systems used by the Kenya Red Cross Organization for Collecting and sharing of information
<b>Cost control Tools</b>	These are information communication and technology tools used by the Kenya Red Cross Organization to Create actuals against budgets by issuing purchase orders, creating time logs, using resources (chargeable locations, company assets and chargeable contacts) and incurring expenses (from product library or miscellaneous expenses).
<b>Time tracking tools</b>	Computer software that allows Kenya Red Cross employees to record time spent on tasks.
<b>Project</b>	A collection of linked activities that are carried out in an organized manner by the Kenya Red Cross Society and that has a clearly defined beginning and ending purposed to achieve some specific results desired to satisfy a clearly defined objective.
<b>Project monitoring</b>	A continuous and periodic review, and overseeing of the projects at the Kenya Red Cross Society to ensure that input deliveries, work schedules, target outputs and other required actions proceed according to the project plan
<b>Project Performance</b>	The degree to which projects by the Kenya Red Cross organization in Nairobi achieve the goals for which they were set up for with regard to the short term and long term requirements of the stakeholders.
<b>Quality assurance</b>	Systematic process of checking to see whether products or services offered by the Kenya Red Cross Organization meets specified requirements. A quality assurance system is said to increase customer confidence and a company's credibility, to improve work processes and efficiency, and to enable a company to better compete with others.

**Relief Aid**

Humanitarian assistance in material and logistic to people in need by the Kenya Red Cross Society. It is usually short-term help until the long-term help by government and other institutions replaces it.

**1.12 Organization of the Study**

This research was organized into five chapters. The first chapter focused on the background of the study, statement of the problem, objectives of the study and the purpose for this study.

The second chapter looked into the literature reviewed, the theoretical framework and the variables that were to be studied. The third chapter of this study looked into the research design, the target population, sample size and the sampling procedures that were employed by the researcher. The fourth chapter of this research project dealt with data analysis, presentations, and interpretations. Chapter five of the study gives summary of the findings, discussions, conclusions and recommendations.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter discusses the literature that has been established about use of ICT tools in management of projects and their influence of the performance of projects. The chapter as well looks at the theoretical framework used as a basis for linking the adoption of ICT tools in project monitoring and its effects on the performance of projects. The chapter also carries out reviews of the past studies done by other researchers about the use of ICT in management of projects.

#### **2.2.1 Use of Information Communication and Technology Tools for Communication on project performance**

Communication technology is one of the central elements of integrative project management. The project manager should select appropriate communication technology equipment that will help him coordinate the activities of the implementation team. The technology should be able to coordinate and monitor all the ongoing project activities in the team. One such technology that can be used for coordinated communication is the use of the intranet. This idea has been emphasized by Wilkinson (2005). The author states that there should be integration of the back office with the other systems of the project. All the project teams should be in a position to access the intranet regardless of their locations. With the availability of the intranet, it is easy for the project manager and the implementation team to access information about the progress of the project.

Other communication tools can be established to support the functions of the intranet. These include the use of video conferencing facilities, the use of emails and the use of mobile phone communication. The project manager can give regular updates of the project progress to the team members. The use of these technologies is supported by Wilkinson (2005) who insists that emails can be used by the professionals to send drawings to other team members. In such an instance, the project manager will keep a track and trail of all the documents sent by the professionals. The tracking then makes it easy for the manager to come up with corrective measures for the project in case of any need.

In cases where teams work from different locations, a virtual intranet access infrastructure should be developed for all the participants. The virtual private network access to the intranet has been suggested by authors like Ohrtman (2004) as one of the methods that can be used to connect remote users to an intranet. It is described as a network that connects remote users securely to an enterprise. The author gives an example of the salespeople that are equipped with telecommuters and laptops who would like to connect, in an intermittent manner, from different locations like hotels, convention centers, coffee shops and airports. The working of a project team can be similar to this description. If some of the project members are working from remote areas, it is easy for them to log into the intranet from the remote locations and monitor the progress of other team members.

When using ICT in project monitoring, sharing of information may become prevalent. Issues of intellectual property rights may arise. Therefore, there should be a limitation to the amount of information that can be shared on platforms like the company intranet. Some of the tools that can be shared on the intranet for monitoring and evaluation purposes include the Work Breakdown Structure, Gantt chart, the project evaluation and review technique (PERT) diagram and the schedule of all work activities. These are useful tools that assist in the communication of information about the progress of the project. They are used as visual representations to the progress of the projects (Parent et al, 2013).

Even though the use of intranet can facilitate proper monitoring of project activities, it also has its weaknesses. Kalakot (1997) has explained some of the advantages and disadvantages of using intranet. The use of the intranet enables the project team to have the ease of publishing information internally. The cost of designing and constructing an intranet is affordable. The intranet needs low maintenance. It is also easy to be accessed by all the project team members. The use of intranet has less back end integration. The company using the intranet may not be able to set up one unified system. There is also the risk of hacking. It is possible to hack into the intranet system and cause damage to the information or distort data. This would delay the project completion date.

### **2.2.2 Use of Information Communication and Technology Tools for Time Tracking on project performance**

The time management aspect of the project preparation stage can be well handled using the Gantt chart. This chart helps the project manager monitor the progress of the project tasks. Whenever there is a deviation that could result in lagging of some tasks, the Gantt chart will indicate. Still, the sequencing of project events, by use of the Program Evaluation and Review Technique (PERT), helps the project manager understand the tasks that can be crashed in case there are some lagging tasks (Larson & Gray, 2011).

The use of the work breakdown structure helps in the scope management which in consequence helps in completion of the project within scheduled time and planned budget. With the introduction of the Microsoft Project packages, it is easy to formulate a work breakdown structure. The use of the work breakdown structure in the planning and monitoring of projects ensures that every activity within the scope is completed and that no extra work not within the scope is carried out. The work breakdown structure helps in the definition of the scope of the project through the listing of individual tasks that constitute the project. In order to complete the project on time, the project team completes the tasks listed without venturing outside the defined scope (Norman et al, 2010).

The tasks in the work breakdown structure are measurable. During the development of the work breakdown structure, specific costs are allocated to each task. The project managers are thus able to distribute the budget of the project into defined packages. The packages are linked to the tasks and the managers are able to ensure that the total costs of the tasks do not exceed the total project costs (Andongndou et al, 2009). Through this, the managers are able to control the project budget to ensure that there are no cost overruns. If there is enough money as planned for the project activities, then the completion takes place within the scheduled time. Therefore, it can be stated that the use of the work breakdown structure helps the project manager keep the project within budget during implementation.

In projects, the use of the work breakdown structure is important in the progress tracking function. The tasks in the work breakdown structure have limits that are clearly defined. A project manager can determine the progress of the projects by monitoring the finished vis-à-vis the unfinished tasks (Norman et al, 2010). The project manager is also able to check the work progress within each task. This is possible through the comparison of the completed



phase of the task against the uncompleted phase. Percentage completion of each task can be evaluated basing on the distribution of the activities on the work breakdown structure. In cases where the tasks are lagging, it is possible for the project manager to pinpoint the staff responsible for the delays. The delays can also be quantified in terms of time. All this is possible because of the simplification of activities by the work breakdown structure.

As is with the work breakdown structures in projects, the work packages are also important. In project management, a work package, as defined by Kerzner (2013), is the effort needed to come up with a deliverable within a project. Such an effort could be as simple as a single task or it could be several and related tasks. An understanding of the work packages helps in analysis of its importance in projects. Each step in work packages contains steps required for completion of a task. Each step has a deadline. The work packages help the project manager to ensure that the entire project has remained on schedule. When work packages are used, it is possible to work on different pieces of project tasks and activities simultaneously, using different people. Each project team is able to work on its work package, severally, and in the end, all the packages are brought together in a seamless way.

### **2.2.3 Use of Information Communication and Technology Tools for Quality Assurance on project performance**

ICT can be used when quality assurance tools are used in project monitoring. Statistical control is one of the ways that can be used by the management of any organization to implement quality assurance in its production processes. This tool can be applied with an aim of monitoring and controlling a process in a company. It is mostly applicable in manufacturing set ups. The important tools used in this process include control charts, design of experiments and continuous improvement (Larson & Gray, 2011).

When using the control charts, data is collected from various points along the processing map. The data is monitored to detect any variations. While using the chart, it is easy to determine sources of variation. These sources are then fixed. This ensures that the end products have conformed to the quality specifications. Ishikawa diagrams are also useful tools in quality assurance system. This is a cause and effect diagram that shows the cause of a specific event. This is used in quality defect prevention. The tool is useful in detecting the causes of defects on a product. After data has been collected, variations are identified. The

Ishikawa diagram is used to identify the causes of the defects. The causes of defects in the product are categorized into methods, people, machines, materials, measurements and the environment (Chemuturi, 2010).

#### **2.2.4 Use of Information Communication and Technology Tools for Cost Control on project performance**

The use of ICT for cost control methods have been studied by researchers. Studies in this area suggest that organizations should realize greater financial performance benefits when ICT resources are used for cost control. Using hierarchical regression analyses, Maiga et al (2014) indicated that while information technology integration and cost control systems do not provide significant independent effects on plant financial performance, they do interact to positively impact manufacturing plant financial performance. This finding implies that maximizing the performance benefits of cost control systems and information technology integration require attending to the integration between them, rather than treating the levels of cost control systems and information technology integration as independent decisions.

The cost control can be carried out using the ICT tools integrated in the internet. The shared databases in the internet can be used by project implementation team for improvement of the cost performance. Forbes & Ahmed (2010) reported that cost control was an area that could be improved with the improvement of ICT systems. The authors stated that Cost-Plus was one of the software that could be used to effectively control the cost of projects during project monitoring phases. As such, it is important to understand the ways through which ICT can be used to control cost during project monitoring and how this can affect the performance of the overall projects.

### **2.3 The Project Performance**

Project performance can be defined using the performance measurement frameworks. An example of such a framework is the use of a balanced score card. Other performance measurements can also be used to gauge project performance. Balanced Scorecard was introduced in 1992 by Kaplan and Norton. By using a balanced scorecard, an organization can measure its performance. Performance in this respect is about multiplying the net worth of the shareholders, improving the internal business perspectives of doing work, continuous improvement and value creation.

The financial performance of an organization is an essential key performance indicator of projects undertaken. From a financial perspective, the performance should be a measure of the economic consequences of the implemented project. These include the profitability, the operating income, return on investments, the net present value and the internal rate of return. The simplest method that could be used to compute the financial performance of a project is to subtract costs from sales. This gives the net income. However, the method does not take into consideration the discounting factors and does not give a representation of the practical situation on the ground (Orlitzky et al, 2003).

The performance of a project is not necessarily all about the financial indicators. Customer satisfaction and retention is essential for sustainability of businesses. Customer delight index can be used to measure the performance of a project. Customer delight index is a purely subjective data collected from customers who have had contact with an organization through the project deliverables. Customers could be the direct beneficiaries of the project deliverable or the internal customers of the organization carrying out the implementation of the project (Keiningham&Vavra, 2001).

It is also essential to come up with the social measures project performance. Projects are among other objectives, supposed to transform the social lives of the beneficiaries. This objective is mostly prevalent with nonprofit making organizations. There are different methods that can be used to carry out social appraisals and performance measurements of a project. Brent & Labuschagne (2007) published a paper with the purpose of introducing methods developed to consider social sustainability aspects of projects. In this paper, the author argued that there has been marginal inclusion of the social aspects of projects in the appraisal stages.

Most tools, according to the Brent & Labuschagne (2007), have mainly addressed the business sustainable development reporting, product social life cycle assessment and operational conditions. As they decry this status of social sustainability assessment, the authors developed methods that could improve the appraisal processes. The first method builds on a framework of social sustainability criteria, introduced first for the South African process industry. This method is based on the Life Cycle Impact Assessment calculation procedure for environmental Resource Impact Indicators. The second procedure should apply checklists

and questionnaires. After proposing these methods, the authors put them to empirical tests. It was found that the availability of information and standardization of the social media criteria had problems for the quantitative approaches used in the current times. The social sustainability should thus be incorporated into the project and technology management methodologies in phases. It should begin with questionnaires and checklists.

## **2.4 Theoretical Framework**

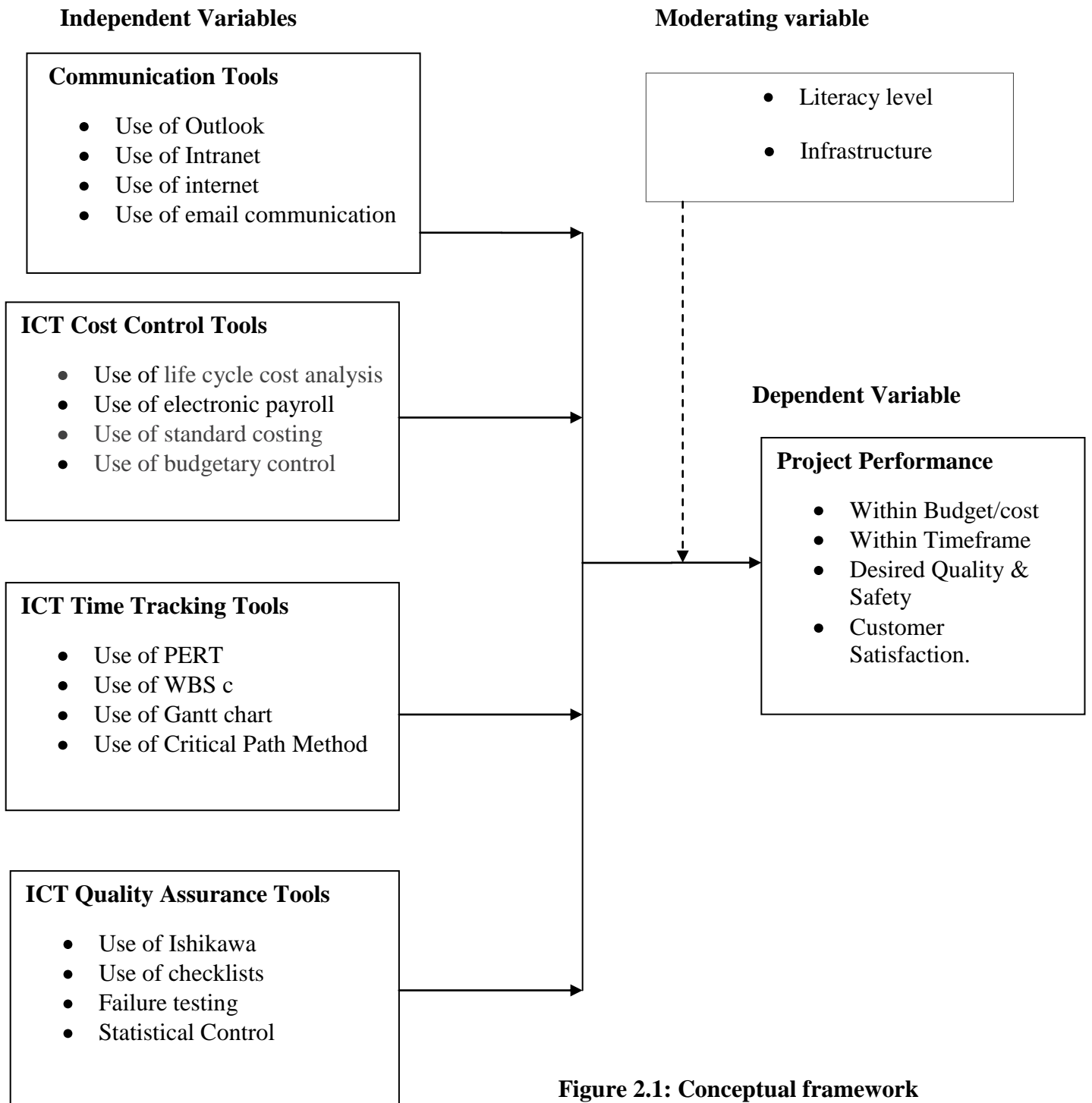
This study uses theories about ICT implementation and adoption in organizations as the framework for analyzing the use of ICT tools in project monitoring. Diffusion of Innovations (DOI) theory is one such framework that the study will use to approach the problem. DOI is a general theory of how new ideas are spread and adopted in a community, and it seeks to explain how communication channels and opinion leaders shape adoption. DOI Theory, developed by E.M. Rogers in 1962, is one of the oldest social science theories. It originated in communication to explain how, over time, an idea or product gains momentum and diffuses through a specific population or social system. The end result of this diffusion is that people, as part of a social system, adopt a new idea, behavior, or product. Adoption means that a person does something differently than what they had previously (Rogers, 2010).

This framework is in line with the analysis of the ICT tools adoption in project monitoring. The decision by any organization to adopt the ICT tools is influenced partly by the factors highlighted in the diffusion of innovation theory. It is understood that some of the tools used in ICT are new and they have to be diffused into the society using different channels and different rates. As such, among the people that adopt the technologies, there are roles played by the Innovators, the early adopters, the early majority, the late majority and the laggards.

## **2.5 Conceptual Framework**

This study used independent and dependent variables to find answers to the research objectives. The dependent variable was the project performance. The independent variables were the ICT tools used in monitoring of projects. Figure 1 shows the conceptual framework for this study. The four variables on the left side of the diagram are independent and they influence the performance of the project. Quality assurance tools, time tracking tools, cost tracking tools and communication tools can be used in project monitoring phase. The use of these tools can have a direct influence on the performance of a project. The moderating variables, though not key to effectiveness of the project performance cannot be ignored. They can significantly affect the outcome of the project.

In this framework, the motoring activities include communications tools, cost control tools, time tracking tools and quality assurance tools. All these activities have an impact on the performance of the project. In this study, projects performance is considered to be the dependent variable.



**Figure 2.1: Conceptual framework**

## **2.6 Gaps in literature reviewed**

This chapter has discussed studies that relate to the project monitoring and project performance. In the chapter, it has been found that project monitoring phase has an influence on the overall performance of the project. Empirical studies have shown that the activities undertaken in monitoring can determine if the project will be successful or not. It has been found that different tools can be used for project monitoring and ICT is an important contributor to the phase. The chapter is thus essential to the understanding of the issue of the use of ICT in project management, especially in project monitoring.

However, there is a gap in knowledge about the use of ICT tools in monitoring of relief aid projects and the effect of the same in project performances. There are no studies that show the extent of the use of ICT tools in project monitoring phase. The use of ICT tools for communication, time, cost and quality control in project monitoring has not been documented in studies. As well, the effect of the use of such tools on the performance of the projects has not been studied. A survey will be done using a questionnaire which will be filled by the respondents. A representative sample of 88 respondents will be interviewed so as to make generalizations about the entire population. The study will use both primary and secondary data as its source of information. The findings of the research will help highlight areas of improvement for similar programs across the country and the world.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter discusses the methods that will be used to obtain the answers to the research problem. The chapter is organized into different sections. The sections discussed include research design, population, sampling technique, data collection methods, and data analysis methods.

#### **3.2 Research Design**

This study used descriptive survey design. According to Kothari (2008), this design deals with the gathering of data in order to describe events and issues as they are in their current status. In a descriptive survey design, the data is organized, tabulated, depicted and described through visual representation and description. The visual representation aids comprise of graphs and charts. The use of this design will facilitate an in-depth analysis of the effects of the use of ICT in monitoring of projects on the performance of relief aid. The survey design has its advantages and its disadvantages. Given that the mind cannot get the full meaning of vast volumes of data, descriptive research statistics are essential for reducing the available data into forms that are easy to manage. While using this design, an in-depth and narrative description of numbers organizes the data into patterns that are easy to understand. Descriptive survey studies are preferred by researchers as they allow drawing of inferences based on data collected from small portion of a large population (Creswell, 2009). This method is most ideal for this study because it will give the researcher an opportunity to gather and describe accurate information about the relationship between project appraisal and project performance at the Red Cross Society of Kenya. Kothari (2008) observes that the descriptive research design exhibits a weakness when it comes to the confidentiality of information. This comes as the subjects of the study may decide to give answers as per what they think the researcher wants to hear. In this design, the respondents may be conscious of the fact that they are under observation, hence behaving in a certain style that may influence the outcome in an unusual way. This can then result in the misrepresentation of the validity of the data obtained from the field.



### 3.3 Target population

The target population of this research was the Kenya Red Cross Organization, Nairobi. The Nairobi branch has two hundred and ninety one volunteers who participate in different programs of the Red Cross Organization. This source helped the researcher to get credible information about the location of the offices. And the researcher obtained answers to the research questions.

**Table 3.1: Target population**

<b>Departments</b>	<b>Population No.</b>	<b>% of total population</b>
Clean Water and Sanitation	21	7%
Drought and Desertification	75	26%
Health and Human Development	63	22%
Continuous development	36	12%
Emergency Response	52	18%
Hunger and Food Security	44	15%
Total	291	100%

(source: [www.kenyaredcross.org](http://www.kenyaredcross.org))

### 3.4 Sample size and sampling techniques

This study used stratified random sampling technique. The population was stratified into different offices. A simple random sampling was then carried out on each of the office. According to Mugenda & Mugenda (2003) the sample size should be between 10-30% and it should be as large as possible so as to produce the salient characteristics of the accessible population to an acceptable degree . In this study, 30 % of the population was sampled. Eighty eight employees will were studied. The Red Cross Organization in Nairobi was stratified into the six programs which include Clean Water and Sanitation, Drought and Desertification, Health and Human Development, Continuous Development, Emergency Response and Hunger and Food Security. In each program, respondents were selected using simple random sampling. Each unit in the sample had an equal opportunity of being selected.

**Table 3.2: Target Population and Sample**

<b>Departments</b>	<b>Population No.</b>	<b>% of total population</b>	<b>Sample size (30%)</b>
Clean Water and Sanitation	21	7%	6
Drought and Desertification	75	26%	23
Health and Human Development	63	22%	19
Continuous development	36	12%	11
Emergency Response	52	18%	16
Hunger and Food Security	44	15%	13
<b>Total</b>	<b>291</b>	<b>100%</b>	<b>88</b>

### **3.5 Data collection instrument**

The study used a questionnaire to collect data. A questionnaire is a data collection tool that has a series of questions and other prompts whose purpose is to gather information from respondents (Brace, 2008). Questionnaires are preferred to other data collection instruments because they are affordable; they do not need efforts on the side of the questioner and always have consistent answers. Its shortcoming is that it gives the respondent a limited chance of expressing anything. Again, given that they are in writing form, they necessitate the user to read before giving answers (Kothari, 2008). This study used questionnaire because it was easy to disseminate the tool to the respondents. The sampled population was 88 and use of questionnaires enabled the researcher to collect the data within the shortest time possible. The questionnaire had close ended questions.

#### **3.5.1 Piloting the instruments**

Pilot testing was carried out in order to ensure that the questions were clear and with no ambiguity. It is important to pilot test the instrument to ensure that the questions are understood by the respondents and there are no problems with the wording or measurement. Pilot testing involves the use of a small number of respondents to test the appropriateness of the questions and their comprehension. Hence the main purpose of pilot testing is to identify potential problems with the methods, logistics, and the questionnaire (Van Teijlingen & Hundley 2002).

A pilot study was carried out in order to test the research protocols, data collection instruments and sample recruitment strategies. This study was carried out to identify potential problem areas and deficiencies in the questionnaire. The pilot test identified some deficiencies in the questionnaire. Two questions in the questionnaires were found to be of little use. In the initial tool, respondents were being asked to indicate their gender and their age. As well, the respondents had been asked to indicate their work stations and the positions they held in the company. These questions were removed from the questionnaire after the pilot test. They were found not to be necessary instruments for helping the researcher meet the objectives of the study during the survey. The question testing the years of experience of the respondents was also amended to increase the scope.

### **3.5.2 Validity of Instrument**

Validity is the degree to which results obtained from analysis of the data collected actually represent the phenomenon under study. It is the correctness and reasonability of the data collected (Babbie, 2013). The instrument for this study was validated through application of content validity, which is determined by expert judgment. Content validity is a matter of judgment by the researcher and professionals, and has no specific formula for determination (Kothari, 2004). Thus content validity is a qualitative means of ensuring that indicators tap the meaning of a concept as defined by the researcher. This test of validity method was selected because it is consistent with the objectives of the study that seeks to dig deep the details of the influence of information communication and technology tools on the performance of relief aid projects contents. To test for validity of the research instrument in this study, expert opinion from four experts in the project management field was sought. This study therefore established validity of the instruments by seeking the views of the researcher's supervisors as well as three monitoring and control experts. While determining the validity of the items in the research instruments, the advice of three experts was followed as proposed by Kothari (2004).

### **3.5.3 Reliability of Instrument**

Reliability refers to the robustness of the questionnaire and particularly whether, or not, it will produce consistent findings at different times, and under different conditions; for example, with different samples, or when questionnaires have been administered by different interviewers. This study used split -half approach in which half of the items are combined to form on new measure. The result is two tests and two new measures testing the same idea. Split –half method is usually measured at the same period. The scores of one half of test was then compared to the scores of the remaining half to test the reliability (Kaplan & Saccuzzo, 2001). The practical advantage is that split halve is usually cheaper and more easily obtained than over time data .Cohen and Swerdlik, 2001).

### **3.6 Data collection procedure**

The researcher started by securing a permit from the National Council for Science and Technology then developing a list of the target population and establishment of the sample size. The researcher then used the contacts available on the Red Cross Kenya website to mail the questionnaires to the respondents. Data was then collected through the questionnaires According to Fraenken & Wallen (2000), a questionnaire is a list of logically framed questions that each respondent in a survey answers in writing or by making answers on an answer sheet. A questionnaire allows easy collection of large quantity of data within a short period of time. It was also an economical method since finance for facilitating the data collection exercise was limited.

### **3.7 Data analysis techniques**

The completed questionnaires were collected and the data coded, entered and analyzed. Analysis of the data was done by use of both descriptive and inferential statistics. The descriptive statistical approach was adopted for analyzing and presenting the data. Measures of central tendency of mean, mode and median were used for analysis. The outcomes have been presented in the form of bar charts or tables showing deviations and correlations. Descriptive statistics enables the researcher to meaningfully describe a distribution of measurement and also to describe, organize and summarize data (Mugenda & Mugenda, 2003). The study used multivariate regression analysis to establish the relationship between the independent variable and dependent variables.

### **3.8 Ethical Consideration**

According to Schick Tanz & Dusche (2011) ethical issues in research processes are closely related with laws, rules as well as regulations and do not limit researchers in any of their research activities. In research cases where the researcher is using questions to inquire about a certain research phenomenon from a respondent ethics have it that it is significant to seek the consent of that respondent and at the same time assure the respondent of his/her confidentiality.

This study sought the consent of the respondents before proceeding with the process of data collection; equally, the respondents were assured of their confidentiality as well as the use of their responses for the purposes of the research only. This enabled the respondents to open up and share their genuine opinion without fear of being implicated due to their views. The studies purposes was then explained to the respondents in addition to being given an assurance that their participation in the research process was voluntary and as such had the power and right to withdraw their participation at any moment if they feel threatened. The respondents were also assured that their personal details would be taken only for research purposes and would be held as highly confidential.

To this end, Schick Tanz & Dusche (2011) also observes that ethical considerations ensure that the research respondents are consulted throughout the research process; in this vein, the researcher managed to put in place extra measures of keeping in touch with the research respondents to ensure that they clearly understand the different research issues covered during the entire process.

### 3.9 Operationalization of variables

This is a table that shows the variables and their operational indicators

OBJECTIVES	VARIABLES	INDICATOR	MEASUREMENT SCALE	DATA COLLECTION TOOL	TOOL OF ANALYSIS
	<b>Dependent</b> Project performance	<ul style="list-style-type: none"> <li>• Within Budget/cost</li> <li>• Within Timeframe</li> <li>• Desired Quality &amp; Safety</li> <li>• Customer Satisfaction.</li> </ul>	Ratio	Questionnaire	Regression analysis correlation
To establish the extent to which utilization of electronic communication devices in project monitoring influence the performance of relief aid projects by the Kenya Red Cross Organization in Nairobi	<b>Independent</b> ICT Communication Tools	<ul style="list-style-type: none"> <li>• Use of Outlook</li> <li>• Use of Intranet</li> <li>• Use of internet</li> <li>• Use of email communication</li> </ul>	Ratio	Questionnaire	Standard deviation, mean, regression, correlation
To ascertain the influence of cost tracking tools in project monitoring on the performance of relief aid projects by the Kenya Red Cross Organization in Nairobi	<b>Independent</b> ICT Cost Tracking Tools	<ul style="list-style-type: none"> <li>• Use of life cycle cost analysis</li> <li>• Use of electronic payroll</li> <li>• Use of standard costing</li> <li>• Use of budgetary control</li> </ul>	Ratio	Questionnaire	Standard deviation, mean, regression, correlation

<p>To find out the extent to which utilization of time tracking tools in project monitoring influence the performance of relief aid projects by the Kenya Red Cross Organization in Nairobi</p>	<p><b>Independent</b> ICT Time Tracking Tools</p>	<ul style="list-style-type: none"> <li>• Use of PERT</li> <li>• Use of WBS</li> <li>• Use of Gantt chart</li> <li>• Use of Critical Path Method</li> </ul>	<p>Ratio</p>	<p>Questionnaire</p>	<p>Standard deviation, mean, regression, correlation</p>
<p>To find out the influence of the use of quality assurance tools in project management on the performance of relief aid projects by the Kenya Red Cross Organization in Nairobi</p>	<p><b>Independent</b> ICT Quality Assurance Tools</p>	<ul style="list-style-type: none"> <li>• Use of Ishikawa</li> <li>• Use of checklists</li> <li>• Failure testing</li> <li>• Statistical Control</li> </ul>	<p>Ratio</p>		<p>Standard deviation, mean, regression, correlation</p>

## CHAPTER FOUR

### DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

#### 4.1 Introduction

This chapter presents the findings of the results obtained after the administration of the questionnaires to the respondents. These findings are analyzed and discussed.

#### 4.2 Questionnaire return rate

Out of the 88 questionnaires administered to the respondents, 72 (82%) were filled and returned. This was a good response rate. Saunders et al. (2003) indicate that 30 to 50 percent response rate is reasonable enough for statistical generalizations.. The 16 (18%) questionnaires were not returned. Table 4.1 shows the response rate for the study.

**Table 4.1: The Rate of Response of the Study**

<b>Strata</b>	<b>Administered</b>	<b>Returned</b>
Clean Water and Sanitation	6	4
Drought and Desertification	23	19
Health and Human Development	19	15
Continuous development	11	7
Emergency Response	16	15
Hunger and Food Security	13	12
<b>Total</b>	<b>88</b>	<b>72</b>

#### 4.2.1 Years of Experience of Working with the Red cross Organization

In the research, the respondents' years of experience in the Red Cross offices was analyzed. The questionnaire requested the respondents to indicate the number of years they had worked in the office. Table 4.1 shows the responses regarding the number of years of experience of the respondents.



**Table 4.2: The Years of Experience of the Respondents at Red Cross**

<b>Years of Experience</b>	<b>Frequency</b>	<b>Percentage</b>
Less than 1 Year	11	14.6 %
1-4 Years	33	46.7 %
5-8 Years	18	24.8 %
Over 8 Years	10	13.9 %
<b>Total</b>	<b>72</b>	<b>100%</b>

The results from Table 4.2 show that the respondents who have worked in the Red Cross offices between 1 and 4 years were the highest in number. Those with less than 1 year of experience at the offices were 11 (14.6 %). This information was important for the study because it was used as a control measure. During the analysis, the responses from those who have worked for less than 1 year in the offices were excluded. The researcher held an assumption that for one to have a comprehensive knowledge of performance of projects in the Red Cross office, then he had to participate in projects for more than 1 year. Project performance and years of experience should be related. People with high experience will have better performance than those who have little experience.

### **4.3 Performance of Red Cross Projects**

The performance of Red Cross projects in Nairobi County was tested using five variables. The respondents were asked to rate statements that were related to the Red Cross projects' performance variables. The variables included customer satisfaction, resource utilization, completion of projects within budget, scheduled time and the specified quality. A scale of 1 to 5 was given and the respondents were requested to rank the performance of projects using the provided variables. Number 1 had the lowest value and 5 had the highest value.

The average score for each variable from the respondents in each stratum was computed by adding the total scores and dividing by the number of respondents. For instance, in Drought and Desertification strata, 19 people responded to the questionnaire. In the score, 11 respondents gave the quality variable a score of 3, 6 respondents gave quality a score of 4 while 2 respondents gave quality variable a score of 3. The average score for quality variable for Drought and Desertification strata was thus computed as follows:

$$[(11 \times 3) + (6 \times 4) + (2 \times 3)] \div 19 = 3.29 \approx 3.3$$

The same treatment was given to other variables in the responses from all the members of the strata. This computation was also applied to all the indicators of information and communication technology and the results presented in the subsequent sections. Table 4.3 shows the results of the test of project performance in Red Cross.

**Table 4.3: Rating of Red Cross Project Performance Variables**

Department	Scores for Performance Indicators					Average	Standard Deviation
	Quality	Customer Satisfaction	Resource Utilization	Budget	Time		
Drought and Desertification	3.3	2.2	2.2	3.3	4.1	<b>3.0</b>	0.84
Clean Water and Sanitation	4.4	3.5	1.9	4.2	3.8	<b>3.6</b>	0.93
Health and Human Development	4.2	2.5	3.7	2.7	4.3	<b>3.5</b>	0.89
Continuous development	2.5	4.2	2.5	3.1	4.8	<b>3.4</b>	0.79
Emergency Response	3.1	1.9	4	2.8	3	<b>3.0</b>	0.54
Hunger and Food Security	4.3	3.2	3.1	2	4.1	<b>3.3</b>	0.31
<b>Average</b>	<b>3.6</b>	<b>2.9</b>	<b>2.9</b>	<b>3.0</b>	<b>4.0</b>	<b>3.4</b>	<b>0.72</b>

The standard deviation of the scores for performance of Red Cross projects is 0.72. The large standard deviation is a reflection of the difference in performance of Red Cross projects in different project performance variables. For instance, it has been found that performance of projects in relation to budgetary allocations is poor (3.0) when compared to performance of projects in terms of quality (3.6).

### 4.3.1 Use of ICT Time Control Tools

The questionnaire posed questions concerning the use of ICT time control tools in Red Cross Projects to the respondents. The questions linked specific factors of use of ICT time control tools to project performance. The respondents were requested to rate the statements that linked the ICT tools' use to project performance. A scale of 1 to 5 was given, with 1 having the lowest score and 5 having the highest score. Table 4.4 shows the results of the study.

**Table 4.4: Influence of use of ICT tools for Time Control on Project Performance**

Department	Scores for use of ICT Time Control Tools				
	Use of critical path method	Use of Gantt Chart	Use of Work Breakdown Structure	Use of PERT	Average
Drought and Desertification	4.3	3.2	3.2	4.3	<b>3.6</b>
Clean Water and Sanitation	3.4	2.5	3.9	3.2	<b>3.6</b>
Health and Human Development	3.2	3.5	2.7	2.1	<b>2.8</b>
Continuous development	3.5	4.1	3.5	4.1	<b>3.8</b>
Emergency Response	1.1	2.9	3.6	3.8	<b>3.2</b>
Hunger and Food Security	2.3	1.2	4.1	4	<b>2.9</b>
<b>Average</b>	<b>3.1</b>	<b>2.8</b>	<b>3.5</b>	<b>3.2</b>	<b>3.12</b>

From the results, it is illustrated that use of work breakdown structure has the highest influence (3.5) on the performance of projects. This indicates that the respondents think that this factor of time control impacts most on the performance of Red Cross projects. In the overall score, use of PERT has been ranked at 3.12 as its influence on performance of Red Cross projects. This implies that it affects the project performance to a medium extend. The standard deviation between the scores for the variables of the use of ICT for time control is 0.29. This indicates that

most of the respondents have similar views about the effects of use of ICT for time control on the performance of Red Cross projects.

### Use of ICT Cost Control Tool

In the study, the researcher sought to analyze the effect of the use of ICT cost control tools on the performance of projects at Red Cross. Variables related to ICT cost control tools were tested. In the testing, statements were posed to the respondents and they were requested to rank them using either of the five provided responses. The responses included (1) No influence, (2) Small extent, (3) Medium extent, (4) Large extent, (5) Very large extent. The responses were ranked from 1 to 5, with 1 having the lowest score and 5 having the highest score. The results of the study were compiled using mean and presented as shown in Table 4.4.

**Table 4.5 The Influence of use of ICT Cost Control Tool on Project Performance**

Department	Scores for ICT Cost Control Tools				
	Budgetary control tools	Life cycle cost analysis	Standard Costing Analysis Tool	Electronic Payroll	Average
Drought and Desertification	3.2	2.5	4.1	3.3	<b>3.44</b>
Clean Water and Sanitation	4.4	3.4	2.8	4.2	<b>3.54</b>
Health and Human Development	1.2	4.5	3.4	4.1	<b>3.3</b>
Continuous development	4.5	3.1	4.2	3.4	<b>3.6</b>
Emergency Response	3.1	2	2.6	4.8	<b>3.28</b>
Hunger and Food Security	4.1	4.2	3.8	3.4	<b>3.92</b>
<b>Average</b>	<b>3.2</b>	<b>3.3</b>	<b>3.65</b>	<b>3.9</b>	<b>3.52</b>

Table 4.5 shows that the use of different tools of ICT in cost control has different effects on the performance of projects. Electronic payroll has the highest effect on project performance. This is followed by cost analysis tool. Use of budgetary control tools has been ranked to have the lowest effect on project performance. The overall score for the effect of use of ICT cost control tools on project performance is 3.52. This, according to the interpretation of the scores, shows that ICT cost control tools affect project performance to more than a medium extend. The standard deviation is 0.298. This largely shows that the scores deviate from the mean by a small margin. This is a possible indicator that the use of ICT cost control tools has had similar results on performance of Red Cross projects in all the departments.

#### **4.3.2 Use of ICT Quality Control Tools**

Prior to the study, the researcher thought that the use of ICT quality control tools was a contributing factor to the performance projects. Statements that associated factors of ICT quality control tools to project performance were posed to the respondents. The respondents were requested to state whether the factors mentioned had an influence on the project performances at Red Cross. The factors tested included use of Ishikawa Diagrams, statistical control tools, e-checklists and failure testing. The ranking of the effects of these factors was varied from 1 to 5. 1 had the lowest ranking while 5 had the highest ranking. The numbers had the following connotations: (1) No influence, (2) Small extent, (3) Medium extent, (4) Large extent, (5) Very large extent. The results of the ranking were computed and means of scores from every constituency were presented as shown in Table 4.6.

**Table 4.6 Influence of use of ICT Quality Control Tools on Project Performance**

Department	Scores for use of ICT Quality Control Tools				
	Use of Ishikawa Diagrams	Use of statistical control tools	Use of e-checklists	Use of failure testing	Average
Drought and Desertification	3	1.4	3.2	2.3	<b>2.62</b>
Clean Water and Sanitation	4.1	2.3	2.9	3.2	<b>3.04</b>
Health and Human Development	2.2	3.4	3.6	2.3	<b>2.76</b>
Continuous development	3.2	3.2	2.2	2.8	<b>2.8</b>
Emergency Response	2.1	2.5	3.8	3.6	<b>2.94</b>
Hunger and Food Security	3	3.1	2.8	3.8	<b>3.3</b>
<b>Average</b>	<b>2.92</b>	<b>2.94</b>	<b>2.93</b>	<b>2.88</b>	<b>2.91</b>

The results in Table 4.6 show that the use of statistical control tools has the highest influence (2.94) on the performance of projects at Red Cross. Employment of failure testing has the lowest (2.88) influence on the performance of projects in Red Cross. The overall score is 2.91. This indicates that the use of ICT quality control tools affect performance of Red Cross projects only to a small extent. The standard deviation of the scores is 0.09. This implies that the variation from the mean score is small. Given that the respondents are experts in their respective areas of project management, it is easy for them to have agreeing answers on specific aspects of project performance and use of ICT tools.

### 4.3.3 Use of ICT Tools in Communication

In the study, it was assumed that the proper use of ICT in communication had an effect on the performance of Red Cross projects. The researcher sought to find the relationship between the use of ICT communication tools during project monitoring and the performance of Red Cross projects. In this study, statements that associated ICT communication tools to performance of projects were posed to the respondents. They were asked to evaluate the statements by selecting any of the five responses. The responses included (1) No influence, (2) Small extent, (3) Medium extent, (4) Large extent, (5) Very large extent. Number 1 had the lowest value and 5 had the highest value. The scores of this variable were averaged for each constituency and presented in Table 4.7.

**Table 4.7 The Influence of use of ICT Communication Tools on Project Performance**

Department	Scores for effects of use of ICT Communication Tools on Project Performance				Average
	Use of office outlook	Use of Emails	Use of internet	Use of intranet	
Drought and Desertification	2.5	2.4	3.4	4.1	<b>2.94</b>
Clean Water and Sanitation	3.2	4.3	3.2	4	<b>3.66</b>
Health and Human Development	3.4	2.6	3.1	1.3	<b>2.74</b>
Continuous development	4.2	4.2	4.2	3.5	<b>3.78</b>
Emergency Response	3.1	3.6	2.5	2.8	<b>3.1</b>
Hunger and Food Security	3.5	2.4	3.9	2.8	<b>3.36</b>
<b>Average</b>	<b>3.3</b>	<b>3.42</b>	<b>3.38</b>	<b>3.26</b>	<b>3.34</b>

The study results show that the use of emails has the highest influence (3.42) on the performance of projects at Red Cross. In overall performance, use of ICT for communication influences (with a score of 3.34) the Red Cross project performance. The standard deviation of the variable scores is 0.064. This means that the influence of the factors of communication on Red Cross project performances is almost similar in magnitude. This implies that the respondents are in agreement about the influence of all the use of ICT communication tools on the performance of the Red Cross projects.

#### 4.4 Regression model of use of ICT tools and Project Performance

Multiple linear regression analysis was carried out, using a Java Script software, in order to obtain the model that could relate project performance and the variables of ICT tools in project monitoring. Table 4.8 was used to develop the regression model.

**Table 4.8 Average Scores of ICT Tools' use and Project Performance**

Department	Scores for use of ICT Tools and Project Performance				
	ICT time control tools	ICT Cost Control Tool	ICT Quality Control Tool	ICT Communicati on tools	Project Performance
Drought and Desertification	3.6	3.44	2.62	2.94	3
Clean Water and Sanitation	3.6	3.54	3.04	3.66	3.6
Health and Human Development	2.8	3.3	2.76	2.74	3.5
Continuous development	3.8	3.6	2.8	3.78	3.4
Emergency Response	3.2	3.28	2.94	3.1	3
Hunger and Food Security	2.9	3.92	3.3	3.36	3.3



From the regression analysis, the fitted regression model is

$$Y = 3.974 - 0.244 X_1 + 0.3014 X_2 - 0.4511 X_3 + 0.1497 X_4 + 0.2325$$

Where

Y is the project performance

X<sub>1</sub> is use of ICT time control tools

X<sub>2</sub> is the use of ICT cost control tools

X<sub>3</sub> is the use of ICT quality control tools

X<sub>4</sub> is use of ICT communication tools

The value 3.974 is a constant factor while 0.2325 is the error term.

The coefficient of multiple determination is 0.098.

The F statistic is 0.1912.

Variance is 0.0835178

The coefficient of multiple determination shows that indicates that the model explains 9.8 % of the variability of the response data around its mean. The use of ICT quality control tools and time control tools negatively affect the performance. The use of information technology and communication tools and ICT cost control tools on the other hand positively affects performance of projects. The study assumes, with a 95 % significant level, the model has a statistically significant predictive capability. From the F statistic value of 0.1912, this assumption is held not to be true. The whole regression model is therefore not statistically significant if a critical value of 0.05 is assumed. In the event that there is no any other information about project performance, there would be 0.0835178 (8.35 %) uncertainty if the regression model was adopted.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents the summary, the conclusion and the recommendations for further studies. The summary gives an overview of the entire work. It summarizes the results and the inferences. The conclusion section attempts to answer the question that prompted the study. The recommendation points out some of the weak points that might have been in the study and suggests areas that should be considered for further studies.

#### **5.2 Summary of Findings**

This study intended to find out the relationship between the use of ICT tools in project monitoring and the performance of projects in departments of Red Cross in Nairobi County. In the analysis, the project performance indicators of timely completion of projects, quality conformance, completion of project within budget, cost performance and customer satisfaction were used as the dependent variables. Time control, cost control, quality control and communication using ICT were used as independent variables. They were used for measurement of use of ICT tools during project monitoring. A multiple regression analysis found out that there was a relationship between use of ICT tools during project monitoring and project performance.

#### **5.3 Conclusion**

From the results presented in this section, it is concluded that the use of ICT tools during project monitoring does indeed influence the performance of Red Cross projects. There is a correlation between the ICT tools' use and the project performance. The regression model shows that the use of ICT tools during monitoring is significantly related to the project performance by various coefficient values a constant of 3.974. The model however does not closely represent the real points of the data, with a coefficient of determination of 0.098. The research therefore concludes that there is a relationship between use of ICT tools and project performance.

## **5.4 Recommendations**

Based on the findings, the study came up with the following recommendations:

1. The Kenya Red Cross organization should incorporate ICT tools in project monitoring for the success of the project performance.
2. The Kenya Red Cross Organization should invest in laying down a valid ICT infrastructure to help in the monitoring of the project
3. The Kenya Red Cross organization should do capacity building for its volunteers the use ICT tools in monitoring of projects to enhance project performance
4. The Kenya Red cross organization should install structured network at the Nairobi office to support voice and data. The departments should then be interlinked to improve on information sharing during monitoring of projects.
5. The Kenya red Cross organization should install a new PABX system with VOIP capabilities with improved voice transfer and an upgraded bandwidth to ease information exchange and faster internet access

## **5.5 Areas for further study**

Even though the study has been exhaustive in achieving its objectives, there are areas of improvement that could be adopted. The explanation to the relationship between some of the ICT tools' variables and project performances is not exhaustive. More studies need to be carried out to understand the specific relationships between each of the ICT tools' use and the project performance. A thesis can be developed and tested to understand this relationship in a better way. Document analysis should also be incorporated into such studies in future. Even though the respondents in this study gave their answers to the best of their knowledge, their information cannot be as objective as it would have been had document analysis been carried out by the researcher.

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## APPENDICES

### Appendix I: Introduction Letter

17<sup>th</sup> June, 2015.

Alice Ouma Adhiambo  
P.O. Box 3695 -00100  
Nairobi, Kenya

To: Whom It May Concern

Dear Sir/Madam,

#### **REQUEST FOR DATA COLLECTION**

My name is Alice Ouma Adhiambo, Reg. No. L50/69311/2013. I am a post-graduate student at the School of Continuing and Distance Education, University of Nairobi. I am conducting a Research titled **“INFLUENCE OF INFORMATION COMMUNICATION TECHNOLOGY TOOLS IN PROJECT MONITORING ON THE PERFORMANCE OF RELIEF AID PROJECTS IN KENYA”**. I kindly seek your assistance in filling in the attached questionnaire. The information given will be treated in strict confidence and will be purely used for academic purposes. Do not indicate your names or details on questionnaire.

Your assistance and cooperation will be highly appreciated

Yours sincerely,

.....  
Alice Ouma Adhiambo  
**REG NO: L50/69311/2013**

**Appendix II: Authorization Letter from University of Nairobi**



**UNIVERSITY OF NAIROBI**  
COLLEGE OF EDUCATION AND EXTERNAL STUDIES  
SCHOOL OF CONTINUING AND DISTANCE EDUCATION  
DEPARTMENT OF EXTRA-MURAL STUDIES  
NAIROBI EXTRA-MURAL CENTRE

Your Ref:

Main Campus  
Gandhi Wing, Ground Floor  
P.O. Box 30197  
NAIROBI

Our Ref:

Telephone: 318262 Ext. 120

3<sup>rd</sup> November 2015

REF: UON/CEES//NEMC/22/426


**TO WHOM IT MAY CONCERN**

**RE: ALICE OUMA ADHIAMBO- REG NO L50/69311/2013**

This is to confirm that the above named is a student at the University of Nairobi College of Education and External Studies, School of Continuing and Distance Education, Department of Extra- Mural Studies pursuing Master of Arts in Project Planning and Management.

She is proceeding for research entitled "**influence of information communication & technology tools on the performance of relief aid projects in Kenya**". The case of Red Cross Organization in Nairobi Region.

Any assistance given to her will be highly appreciated.

  
**CAREN AWILLY**  
CENTRE ORGANIZER  
NAIROBI EXTRA MURAL CENTRE







## Appendix IV: Questionnaire

The purpose of this study is to establish how ICT communication tools, ICT cost, time and quality control tools used in project monitoring affect the project performance.

This questionnaire is a part of Master of Arts in Project Planning and Management at The University of Nairobi, and is completely anonymous and your answers will be used for academic purposes only and will be treated with strict confidentiality. Please indicate the correct option as honestly and as correctly as possible by checking a TICK (✓) on one of the options. For the questions that require your opinion, please complete the blanks.

*(You are kindly requested to respond to ALL the questions for a valid and reliable research)*

### Part I: General details

1. Please tick (✓) category that best describes the program under which you work in Red Cross Organization.

Area of Operation	Tick (✓)
Clean Water and Sanitation	
Drought and Desertification	
Health and Human Development	
Continuous Development	
Emergency Response	
Human and Food Security	

Designation in the company

- (a)Project Manager
- (b)Any other management
- (c)Operational Officer

2. For how long have you worked in this organization?

- (a)Less than 1 year
- (b)Between 1 and 5 years
- (c)More than 5 years

**Part II: Use of ICT Tools in Project Monitoring**

**Use of ICT Time Control Tool**

4. (a) Kindly rate the below statements in a scale of 1 to 5 depending on your level of agreement;

Where: 1 for strongly disagree, 2 disagree, 3 neither agree nor disagree, 4 agree and 5 strongly agree.

Statement	1	2	3	4	5
Work Breakdown Structure is always used in monitoring of projects					
Critical Path Method is used in an ICT form in project monitoring in the organization					
PERT is used in ICT form in project monitoring in the organization					
A Gantt chart is used in ICT form in project monitoring in the organization					

3. (b) Kindly rate the below statements in a scale of 1 to 5 depending on your level of agreement;

Where: 1 for strongly disagree, 2 disagree, 3 neither agree nor disagree, 4 agree and 5 strongly agree.

Parameters	1	2	3	4	5
Use of Gant Charts improve productivity through tracking of results					
Critical Path Method helps in identification of urgent needs within the project cycle					
Work breakdown Structure creates accountability amongst the team members					

**Use of ICT Cost Control Tool**

4. (a) Kindly rate the below statements in a scale of 1 to 5 depending on your level of agreement;

Where: 1 for strongly disagree, 2 disagree, 3 neither agree nor disagree, 4 agree and 5 strongly agree.

Statement	1	2	3	4	5
ICT is used in budgetary control in monitoring					
ICT is used in life cycle cost analysis in monitoring					
There is use of electronic payroll in projects					
ICT is used in standard costing during monitoring					

5. (b) Kindly rate the below statements in a scale of 1 to 5 depending on your level of agreement;

Where: 1 for strongly disagree, 2 disagree, 3 neither agree nor disagree, 4 agree and 5 strongly agree.

Statement	1	2	3	4	5
Does the use of budgetary control in monitoring ensures the project is completed within budget/cost					
Does the use of life cycle cost analysis in monitoring helps in cutting down unnecessary expenses					
Does the use of electronic payroll in projects compares budgeted cost of work scheduled and cost of work performed					
Does the use of standard costing during monitoring helps in reconciling incurred cost and expected cost					

### Use of ICT Quality Control Tools

6 Kindly rate the below statements in a scale of 1 to 5 depending on your level of agreement;

Where: 1 for strongly disagree, 2 disagree, 3 neither agree nor disagree, 4 agree and 5 strongly agree.

Statement	1	2	3	4	5
Ishikawa Diagrams are used in monitoring					
There is use of e-checklists in monitoring of projects					
ICT is used during failure tests in project monitoring					
Statistical Control is used in project monitoring					

### Use of ICT Tools in Communication during project monitoring

7. (a) Kindly rate the below statements in a scale of 1 to 5 depending on your level of agreement;

Where: 1 for strongly disagree, 2 disagree, 3 neither agree nor disagree, 4 agree and 5 strongly agree.

Statement	1	2	3	4	5
Outlook is used during monitoring					
E-mails are used for project monitoring					
Internet is used during project monitoring					
Intranet is used during project monitoring					

7. (b) in your own opinion do you think good communication plan is vital in project performance?

Yes [ ] No [ ]

### Part III: Performance of Projects

8)The statements below describe the trend of performance of project in your organization.

Kindly rate them in a scale of 1 to 5 depending on your level of agreement;

1 for strongly disagree, 2 disagree, 3 neither agree nor disagree, 4 agree and 5 strongly agree.

Statement	1	2	3	4	5
Projects completed within the provided budget.					
Projects completed within the scheduled time					
Projects completed within the desired quality					
Projects met customer's satisfaction.					

Thank you for taking time to respond to this questionnaire

**Appendix V: Location of Nairobi County in Kenya**



(Source: <http://www.guide2kenya.com>)