AN ANALYSIS OF INFORMATION COMMUNICATION TECHNOLOGY ADOPTION AND PERFORMANCE OF RURAL BASED BUSINESS PROJECTS (CASE OF KIBWEZI DISTRICT - MAKUENI COUNTY)

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MAY 2012
Declaration

I declare that this project is my original work and has not been presented for award of any degree in any other University.

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Dedication

This work is dedicated to my family members for the continued support and encouragement during the development of this study. To you my lovely wife, I owe for the encouragement during my study and for your constant urge to me to go on. I dedicate this work to my daughter and son, and to my parents for being a source of inspiration throughout my study. May God bless you all.
Acknowledgement

I highly regard the contribution of my Supervisors Mr. Eliud Obere and Mr. Robert Nzulwa towards the performance of this study. I am also grateful to my friends and classmates for the encouragement and valuable advice they accorded me in carrying out the study.
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<th>Description</th>
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<tbody>
<tr>
<td>APM</td>
<td>Association of Project Management</td>
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<tr>
<td>CBO</td>
<td>Community Based Organization</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>ICT</td>
<td>Information Communication Technology</td>
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<td>IFAD</td>
<td>International Fund for Agricultural Development</td>
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<td>M &amp; E</td>
<td>Monitoring and Evaluation</td>
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<td>NGOs</td>
<td>None Governmental Organizations</td>
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<td>RTC</td>
<td>'Reach The Children' initiative</td>
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<td>UN</td>
<td>United Nations</td>
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<td>UNDP</td>
<td>United Nations Development Program</td>
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<td>Definition of terms</td>
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<td><strong>Rural based business projects</strong></td>
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<td>This is a collaborative business enterprise, frequently involving research or design,</td>
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<td>that is carefully planned to achieve a particular aim in areas that are not</td>
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<tr>
<td>urbanized.</td>
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<td><strong>Information communication Technology</strong></td>
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<tr>
<td>This refers to technologies such as desktop and laptop computers, software, peripherals</td>
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<td>and connections to the Internet that are intended to fulfill information processing</td>
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<td>and communications functions.</td>
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<td><strong>Project planning</strong></td>
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<td>A part of project management, which relates to the use of schedules to plan and</td>
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<td>subsequently report progress within the project environment.</td>
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<td><strong>Resource allocation and scheduling</strong></td>
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<tr>
<td>The process of allocating and fixing resources among the various projects activities.</td>
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<td><strong>Monitoring and evaluation</strong></td>
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<td>This is an observation system for the project managers to verify whether the project</td>
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<td>activities are happening according to planning and whether means are used in a</td>
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<td>correct and efficient manner.</td>
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<td><strong>Communication</strong></td>
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<td>Two-way process of reaching mutual understanding, in which participants exchange</td>
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<td>and share meaning of information in project management.</td>
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<td><strong>Adoption</strong></td>
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<tr>
<td>A course of action by starting to use or follow an idea, method, or concept like ICT.</td>
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<td><strong>Project Performance</strong></td>
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<td>Overall quality of a project in terms of its impact, value to beneficiaries,</td>
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<td>implementation effectiveness, and efficiency and sustainability.</td>
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Information

Knowledge of specific events or situations that has been gathered or received.

Technology

This is the making, usage, and knowledge of tools, machines, techniques, crafts, systems or methods of organization in order to solve a problem or perform a specific task.
Abstract

These rural based projects play a major part in sustaining domestic and regional economic growth and are important agents for alleviating poverty in developing countries. Recent studies have demonstrated that Information and Communication Technologies (ICT) play a pivotal role in rural development. While ICT has long been regarded as a very important aspect of communication, planning, resource allocation and scheduling, monitoring and evaluation, few studies if any have hardly discussed the relationship between ICT adoption and performance of rural based business projects. This therefore necessitated the need to carry out this study with reference to rural based business projects in Kibwezi district. The study answered the questions of the extent to which ICT is applied in the implementation of rural based projects in terms of project planning, communication, resource allocation and scheduling, monitoring and evaluation. The study was of benefit to all Project stakeholders as it evaluated the role of ICT in determining project performance and devising strategies for adoption and use of ICT in different project stages. The study adopted a descriptive survey design. The study was done to examine the relationship between ICT adoption and performance of rural based business projects in Makueni County, Kibwezi District. Stratified sampling techniques was used to select 33 projects officials and 39 project beneficiaries as actual respondents representing 60% of targeted population of 120 members. A semi-structured questionnaire was used as the instrument of data collection. Data was then collected by dropping the semi-structured questionnaires to identified respondents after seeking official authorization from relevant entities. After three days the filled questionnaires were picked for data coding and entry into SPSS program. Data analysis was done using Statistical Package for Social Sciences (SPSS) and presented inform of charts and frequency tables. ICT based project planning strategies were most favoured by 40% of the respondents compared to 60% who were moderate. All the respondents rated ICT based communication methods highly effective modes in project management with 83% underscoring that project performance is attributed to effective communication. ICT adoption objectively facilitates resource allocation mechanisms that provide an automated provisioning of resources. Project performance enhancement due to effective monitoring and evaluation through adoption of ICT systems was favored by 73% against 27% of the respondents.
CHAPTER ONE: INTRODUCTION

1.0: Overview

This chapter covered the background of the study on adoption of ICT in rural business projects; statement of the problem; the objectives of the study, research questions; significance; scope and limitations of the study.

1.1: Background of the study

Organizations are increasingly becoming project based, this means that the work they do is split into programmed projects designed to deliver organizations strategies and add value (Haifer, 2004). Projects drive business innovations and change, thus they form a way in which organizations can change, implement a strategy, innovate or gain competitive advantage (Haifer, 2004). In other words, every operational process begun as a project that put things in motion. With high demand for growth and innovations, the share of operations in most organizations is declining and the share of projects is on the rise (Shenhar, 2007). This trend begun in 1900 and it is accelerating, in almost every organization and industry not only has product life cycles become shorter, but also customers today demand greater variety and more choices forcing companies to offer more products in almost every market (Shenhar, 2007). Market globalization is forcing businesses to respond to local demands and low cost competition around the world (Johnson, 2007). While most strategies to maintain competitive advantage such as low prices, high operational efficiency and quality seem to have little effects on ensuring business growth and competitiveness, projects remain the untapped potential for organizations’ to improve and increase their competitive advantage (Jugdey; Muller; 2005).

The performance of every project has therefore been and continues to be a matter of great concern to project stakeholders and researchers as well (Clinton, 2009). In an effort to establish project performance factors, various authors have written on the concept of performance of projects. According to Muller, (2005) good management of projects is essential if it is going to succeed. Equally important is ensuring that the right projects are carried out. Jugdey and Muller, (2005) define performance in context of project management to reflect an appreciation over the entire project and product life cycle. The importance of projects to many organizations is the driving force for the desire to have projects succeed. Among project performance factors as
outlined by Clerke (1999); Davis, (2002); and Muller, (2005) include satisfied stakeholders, meeting agreed project budget, delivering on time, value addition, meeting quality requirements and sense of professional satisfaction for the project team.

With the invention of information Communication Technology, project performance has improved. Information technology and internet revolution is widely used especially with stable industries such as banking and insurance. Investment in Information Communication Technology is becoming an important prerequisite of performanceful projects (Shenhar, 2007). According to Kavanagh, (2005) integration of Information Communication Technology in communication, planning, resource scheduling and monitoring and control is in addition to the conventional performance factors contributing to project performance.

As highlighted by Michael et al, 2009 the speed of the evolution of information and communications technology (ICT) has been phenomenal. In 1947 the first transistor was invented and the use of transistors allowed for the development of smaller, more versatile and more powerful computers (Michael et al, 2009). The second stage in the evolution of ICT began in the 1970’s when it became possible to place processors on a “chip”, and magnetic discs were constructed. The third part of the ICT evolution is that microprocessors became embedded in a myriad of products to the extent that the world as we know it would grind to a halt without the humble microprocessor. The fourth evolution of ICT has its origins in the 1960’s when the US Department of Defence drew up guidelines for a communications network among computers. The development of new products and services has been to the forefront of burgeoning economies over the past years (Mundy et al, 2001). The development of the World Wide Web and the Internet has led to the development of an interactive network of individuals. It is by and for interacting people. This epitomises what the ICT evolution has been all about. It has been about spotting opportunities and inviting everybody to participate and to make good use of them (Madland, 2008).

According to Schaltegger et al, 2006 a business project captures the reasoning for initiating an economic oriented task mostly presented in a well-structured written document or a short verbal argument or presentation. Further, the goals of the business project are that, whenever resources such as money or effort are consumed, they should be in support of a specific business need. An
example could be that a software application that might improve system performance, but the "business project" is that better performance would improve customer satisfaction, require less task processing time, or reduce system maintenance costs. A compelling business project adequately captures both the quantifiable and unquantifiable characteristics of a proposed project (Schaltegger et al, 2006).

With projects providing avenues for organizational performance and increased revenue, rural Kenya has been the major focus of many project organizations due to underdevelopment despite the enormous resources that these areas have been endowed with. Among such regions of focus is Kibwezi district of Makueni County.

1.1.1 Overview of Kibwezi district

Kibwezi district forms part of administrative unit of Makueni County. The district has four administrative subdivisions namely; Kikumbulyu, Kinyambu, Masongaleni and Utithi. The district has a population of 80,236, of whom 4,695 are classified urban. Majority of the residents in the district are the Kamba community with few other immigrants from other communities that have come to work or live in the area. (Makueni district Strategic plan, 2011) Kibwezi district is known for prolonged dry and categorized among the regions with low GDP in the country, (Onyango, 2010).

According to Mbuvi D.K. (2008), business projects undertaken in Kibwezi district include--; Piggery project undertaken by modern investment limited, the project is involved in commercial production and sale of pigs, Philomena project that entails production and sale of water filters. Welding project, for metal fabrication and RTC micro enterprise project, Vegecare Kenya, undertaken by CARE Kenya, and that entail vegetable production through irrigation, Kibwezi irrigation scheme, undertaken by University of Nairobi, Mango project undertaken by CBO an entail production and collective marketing of mangoes and Tree planting project undertaken by the local community and entails planting and marketing of nursery seedlings.
According to Kioko et al, (2005), since interventions are funded on a project basis, some managers in Kibwezi devoted a significant amount of time to fundraising, and were more likely to report that their projects are a success to enhance the chances of continued project funding. In addition, interventions have not been designed either based on baseline surveys or with the intention of capturing evaluative information as was deduced by Mondoh, (2001) in reference to shallow wells projects initiated in Kibwezi. Thus, there was no competent mechanism for the generation of accurate, comprehensive and timely data during the projects' life.

Kioko et al, (2004) reported that all health facilities cited lack of training in management information systems. This contributed to poor collection and analysis of data that could have helped in effective decision-making. This raised questions about the usefulness of the tailor-made software if most users were not trained on how to use. As highlighted by Kioko et al, (2004), lack of programmed quantifiable achievement indicators hinders the measurement of project success in relation to the improvement of the health status of the community. For instance, the water project developed 631 wells in Kibwezi division and Makueni district. However, gaps arose on the optimum number of wells required to make a difference by way of sustained reduction of water-borne diseases. The same applies to the nutrition project. However, a critical look at the intervention raises the question of performance and sustainability.

1.2: Problem statement

Available reports on Kibwezi project interventions reviewed did not indicate what benchmarks informed project activities. Assessing performance in the absence of such benchmarks, indicators and clearly predetermined means of assessing success and processes meant that any achievement, however modest, was acceptable.

Utilization of Information Communication Technology in rural based business projects remains a issues of concern to researchers, government and project stakeholders (Haiser,2004). While, project performance factors have been traditionally indicated by the extent to which an organization, satisfies stakeholders, meets agreed project budget, delivers on time adds value, meets quality requirements, and provides a sense of professional satisfaction to project team, the
extent which ICT is integrated to these project performance factors in rural based projects still remains unclear (Kavanagh, 2005).

Application and use of ICTs and e-business strategies vary widely across sectors. Internet e-commerce can enable businesses to reach a wider and possibly more targeted range of customers either locally or globally especially in automobiles, textiles, tourism, parts of retail and finance and insurance sector. When firms perceive a higher level of market opportunities, they commit more resources to ICTs and e-business where this is appropriate.

As a result, projects in rural areas may suffer consequences of poor stakeholder satisfaction, uncompleted work, poor quality and failure to produce the intended end product which forms a prerequisite for project failure. Studies by Derek, (2005); Bigio, (2009); Kerzner, (2009); showed factors such as lack of community participation, poor project management, poor project goals, and lack of quality training are common characteristics of rural based projects. A similar observation by (Shenhar, 2007) show that over 60% of rural based projects fail, with 45% of those undertaken up to completion stage either exceeding their intended budget or surpassing the time limit within which they are supposed to be finished. Even projects that strictly follow set project performance factors seem not to attain performance (Muller, 2005).

While ICT has long been regarded as a very important aspect of communication, planning, resource allocation and scheduling, monitoring and evaluation, few studies if any have hardly discussed the relationship between ICT adoption and performance of rural based business projects. The effect of integrating ICT into the aforementioned project activities therefore was examined. This created the need to carry out this study with reference to rural based business projects at Kibwezi district. This was important to ensure that the processes of problem identification, priority setting, planning, implementation, monitoring and evaluation are more participatory and that the community is involved at every stage of the project through adoption of ICT.
1.3: Research objectives

1.3.1: General objective

To analyze Information Communication Technology Adoption and performance of rural based projects in Kibwezi District.

1.3.2: Specific objectives

i. To examine the effects of ICT in project communication and performance of rural based business projects

ii. To investigate ICT adoption in planning and performance of rural based business projects.

iii. To examine the effects of ICT adoption in resource allocation and performance of rural based business projects

iv. To establish the relationship between use of ICT in monitoring and evaluation and performance of rural based business projects

1.4: Research questions

i. What is the effect of ICT on project communication and performance of rural based business projects?

ii. How does ICT adoption in project planning affect performance of rural based business projects?

iii. What are the effects of ICT adoption in resource allocation and performance of rural based business projects?

iv. What is the relationship between use of ICT in monitoring and evaluation and performance of rural based business projects?
1.5: Significance of the study
The study revealed the relationship between use of ICT in communication, planning, resource allocation and scheduling, monitoring and evaluation on performance of rural based business projects, this helped in formulating recommendations based on the strengths and weaknesses of using ICT established on the ground. The study was of benefit to future scholars who would use it to further studies related to use of ICT and rural based business projects. Project stakeholders will use this study to evaluate the role of ICT in determining project performance and probably devise strategies for adoption and use of ICT in different project stages.

1.6: Scope of the Study
The study was done to examine the relationship between ICT adoption and performance of rural based business projects in Makueni County, Kibwezi district. The study was limited to the effect of ICT on communication, planning, resource allocation and Scheduling and Monitoring and evaluation on performance of rural based business projects. Project officials as well as project beneficiaries who considered to be critical stakeholders in every project were the target population for the study.

1.7: Limitations Study
The study was faced by limitation of resources in terms of finances and time that was countered by adopting a case study approach whose findings generalized the entire scope and use of questionnaires to collect data. Further, it was assumed that the respondents were willing to honestly reveal the information required for the study rather than concealing. The third major limitation related to capturing of data in an environment where the administrative boundaries of the study area have been changing over the years. These have changed from the Kibwezi in Machakos District in 1978 to Kibwezi in Makueni District in 1992 and on to the present situation of Kibwezi as a district starting 2007. Thus, the variables under study could not be consistently tracked as the administrative platform has kept changing.
CHAPTER TWO: LITERATURE REVIEW

2.1: Introduction
This chapter reviewed past literature regarding the use of ICT in implementation of Rural based projects. The chapter also provided a summary and a critic of research gap created by these studies and the conceptual framework.

2.1.1: Use of ICT in implementation of Rural Based Projects
World over, there has been a remarkable significance in using Information and Communication Technologies in facilitating and accelerating the process of development and as a way of reducing poverty across the globe. In fact, as a common adage today without the usage of ICTs, a society will fall behind in the path of development (Mulira 2006). This has prompted Governments, donors, NGOs and other stakeholders alike, to further the impact of different ICTs given their ability to be used for policy advocacy, local governance and educational development, civic studies, etc and in Kenya; several of such initiatives have cropped up both in urban, semi-urban and in rural settings (UNDP, 2003).

By definition, ICTs include electronic networks – embodying complex hardware and software - linked by a vast array of technical protocols (Mundy et al, 2001). ICTs are embedded in networks and services that affect the local and global accumulation and flows of public and private knowledge. According to the United Nations Economic Commission for Africa, ICTs cover Internet service provision, telecommunications equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centres, commercial information providers, network-based information services, and other related information and communication activities. According to Madland, (2008) ICTs encompass technologies that can process different kinds of information (voice, video, audio, text and data) and facilitate different forms of communications among human agents, among humans and information systems, and among information systems. They are about capturing, storing, processing, sharing, displaying, protecting, and managing information. It is important to emphasize that these technologies only provide new mechanisms for handling an already existing resource, namely information.
As a way of understanding the in depth role of information communication technology especially in rural development given the challenges which move along with such settings, this project became opportune in unveiling the effects of ICT usage in rural-based projects. Information and Communication Technologies have radically changed the modes of production and organization of work at global and national levels and precipitated the process of development. The Millennium Declaration of the United Nations view ICTs as tools with the potential to achieve the Millennium Development Goals set by the historic UN 2000 Summit. Target 18 of Goal 8 calls upon the UN member states to cooperate with the private sector to ‘make available the benefits of new technologies, especially Information and Communications Technologies (UNDP 2003). In regard of the above, developing countries have been urged to harness the full potential of the information revolution to alleviate poverty and seek sustained growth.

ICT contribution is viewed as ICT growth and ICT diffusion where the former implies contribution in output, employment, export-earning, etc., resulting from the production of ICT related goods and services that are limited to just one segment of the economy (Madland, 2008). The latter is ICT induced growth through enhanced productivity, competitiveness, growth and human welfare resulting from the use of this technology by different sectors of the economy and society. Conversely, Sein and Harindranath (2007) assert that ‘the nature of the link between IT and development remains unclear due to lack of clarity on how ICT is conceptualized’. ICT can play a central role in national development through implementation and performance of rural based projects but there is need to identify contextual strategies that facilitate ICT being developmental. Heeks (2008) who believes that we cannot exclude ourselves from the digital age but there is need to ask the poor communities on how ICT can be developmental and how they spend the little they have on it.

2.1.2 Overview of Rural Based Projects in Kenya and adoption of ICT

Kenya has relatively advanced agricultural and industrial sectors and substantial foreign exchange earnings from agricultural exports and tourism (Berdegué et al, 2001). Yet it is a low-income country and ranks 128th among 169 countries in the United Nations Development Programme’s Human Development Index, which measures development in terms of life expectancy, educational attainment and standard of living (UNDP, 2003). Further according to UNDP, (2003) about 79 per cent of Kenya’s population lives in rural areas and relies on agriculture for most of its income. Nearly half the country’s 40 million people are poor, or
unable to meet their daily nutritional requirements. The vast majority of poor people live in rural areas where a lot of project activities are ongoing. Although in some respects conditions have improved since the early 1980s, the poverty rate has remained steady at about 48 per cent (De Beer et al, 2005). The rural economy depends mainly on smallholder subsistence agricultural projects or initiatives, which produces 75 per cent of total agricultural output (World Bank, 2001). Most Kenyans live in areas that have well to high potential for agriculture, comprise about 18 per cent of the country’s territory and are located in the centre and west (UNDP, 2003). Since 1990s, population growth, degradation of natural resources, the changing global climate and the political crisis of early 2008 have all contributed to worsening poverty levels.

Kenya’s long-term development blueprint, Vision 2030, was launched in 2008. It aims to create a “globally competitive and prosperous country with a high quality of life by 2030”. Vision 2030 is designed to guide the country towards meeting the Millennium Development Goals by 2015 and beyond, transforming Kenya into “a newly industrialized, middle income country” (UNDP, 2003). According to UNDP, (2003) evidence shows that rural agriculture-led growth in Kenya is more than twice as effective in reducing poverty as growth led by industry.

The key to better performance in rural development lies in boosting smallholder productivity projects and developing non-farm activities (Berdegué et al, 2001). By making financial services widely available to rural communities to enable the growth of smallholder enterprises, the Government of Kenya aims to stimulate rural economies. The government recognizes that economic development depends on agriculture, tourism, manufacturing and the energy sector. And all of these rely heavily on sustainable management of natural resources (UNDP, 2003).

2.1.2: Rural Project Performance factors

Notice in the definition are included some the performance criteria, The Iron Triangle. Those criteria for measuring performance included in the description used continue to be used to describe project management today (Clinton, 2009). The British Standard for project management defined project management as: The planning, monitoring and control of all aspects of a project and the motivation of all those involved in it to achieve the project objectives on time and to the specified cost, quality and performance (Clinton, 2009).
The UK Association of Project Management (APM) have produced a UK Body of Knowledge UK (BoK) which also provides a definition for project management as: The planning, organization, monitoring and control of all aspects of a project and the motivation of all involved to achieve the project objectives safely and within agreed time, cost and performance criteria (Ashley, 2001).

The project manager is the single point of responsibility for achieving this. Other definitions have been offered, suggests a project is a human activity that achieves a clear objective against a time scale, and to achieve this while pointing out that a simple description is not possible, suggests project management is a combination of management and planning and the management of change (McCarthy, 2008). Lock's view was that project management had evolved in order to plan, co-ordinate and control the complex and diverse activities of modern industrial and commercial projects, while Burke considers project management to be a specialized management technique, to plan and control projects under a strong single point of responsibility.

According to IFAD, (2001) for a project performance, it is essential to understand the project requirements right from the beginning and go for project planning which provides the right direction to project managers and their teams. A performing project is one which is delivered on time and managed within the budget with happy and satisfied clients. A good project manager, an efficient team with support from senior management, a well-conceived plan with proper implementation, and involved stakeholders are some of the factors leading to project performance (De Beer et al, 2005). The best plan is to know right from the start what the client wants and then plan, and execute the plan.

Figure 2.1: Iron Triangle of project performance factors
2.1.3: Communication flow in implementation and performance of Rural-based Projects

The communication and information transfer are vital for the implementation and performance of the rural projects. The use of the traditional paper based communication system has given rise to problems such as human errors, lengthy time, delayed or non-arrival of information, wrong address, information overload and poor information which consequently give rise to some significant project risks such as time and cost overrun and poor quality material and workmanship (Mundy, 2001). These are some critical issues that need to be addressed in order to ensure the implementation and performance any future urban conservation projects. When it comes to project management, people naturally think of its eight major elements: scope, time, cost, quality, human resources, risk, procurement, communication (Harindranath et al, 2007).

Project performance is closely related to all these factors. However, in the actual participation of project, we can find the factor which associated with most of the activities is the project stakeholders; project stakeholders generally include the customer or user, the project team, the project company’s managers and other major stakeholders (Mundy et al, 2001). In the project management, time, cost, quality, human resources, risk, and procurement are related to communication. According to Mulira, (2006), to carry out all elements of communication, to manage all related people, project manager should stand on stakeholders’ perspective, from their needs and interests to achieve their maximum value through the project. If out of these, it is difficult to ensure project performance, then other factors should be looked into e.g. the role of ICT.

In the development of software, the communication style of requirements affect the accuracy of the requirement baseline, the same in the project design and development process. The communication result between project members and project manager directly affect the performance of the project (Mulira, 2006). The key goal of communication in a project is to maintain the progress of the project, identify potential problems, requests for proposals to improve project performance. If the communication is carried out improperly, the project will fail unexpectedly. Communication in project management has its inevitable and irreplaceable important role. The project manager in addition to the preparation of a good communication plan, should also understand how to manage the team, and how to meet the needs of customers, standing on the roles of stakeholders, so as to achieve project targets (Mundy et al, 2001).
2.1.4: Project Planning aided by use of ICT

In pre-computer era, the process of assembling the Rural-based project plan from development plans is likely to be a time consuming, but essentially simple exercise (IFAD, 2001). In the modern era, preparation of project plan in organizations is a much more complicated exercise, involving the large amount of data, their processing, rounds of adjustments, revisions and sensitivity analysis (Mundy et al, 2001). The effective use of spreadsheet modeling facilitates sensitivity analysis. In the project plan model the sensitivity analysis, analysis of risks and probabilities (most likely, optimistic, and pessimistic) are used to give a more balanced view of the future (Clinton, 2009). According to Harindranath et al, (2007), currently, the project plan model is a set of spreadsheets with many independent modules, which are coordinated via e-mail, LAN, Intranet, Groupware Environment.

2.1.5: Use of ICT in Resource Allocation and scheduling

The control of project execution, the project plan and budget implementation have to be of major concern of a Board of Directors. Resource scheduling and allocation requires a skilled team of professionals, integrated strategy management process, tools, technologies and support (Harindranath, 2007). The project plan is the corner stone of the financial and management control by providing a tool to investigate any deviation between actual results and forecasts, in order to keep the project in track with its strategic orientations and to reach objectives, which is necessary for strategy focused organizations (Mulira, 2006).

Organizational Strategic Plans are long-term plans, but they are interconnected with short-term plans and provide a framework for preparation of the project budget which allocates and schedules resources required for implementation and performance of rural based projects that revolves around cost, time and human capital (McCarthy, 2008). The top management investigates the gaps between planned values contained in the project plans and actual values in the performance reports of the budget cycle, at the end of each appraisal period. The purpose of this is to have a responsive managerial system capable to react correctly to ensure appropriate decisions at the right time and at the right place. For project implementation and performance, it is very important to have accurate, relevant and timely information (Harindranath, 2007). The use of extensive communications networks, accessible distributed databases help to provide, store and send information more reliably, quickly and economically, as well as to have
performance reports accurately and in time. ICT helps in: the reduction of manual and paper-intensive forms; more effective work processes; greater transparency; effective governance procedures to ensure the optimum use of available project overall resources (Mulira, 2006).

2.1.6: Adoption of ICT in Monitoring and Evaluation of projects

According to McCarthy, (2008) and Clinton, (2009), Monitoring and Evaluation (M&E) allows ongoing learning and feedback throughout the design, planning and implementation stages of a program. It includes an assessment of results at the end as related to the original objectives set for the project—but only if you plan for it in advance. Program implementers sometimes regard M&E as an externally driven and imposed ‘policing’ action with little perceived value, while policy makers try to understand ‘what happened’ after project completion. Both of these are common occurrences with M&E of projects and application of ICT simplifies understanding by final users (Clinton, 2009).

According to Mulira, (2006), the fiscal dimension of ICTs in rural project development is often seen in terms of capital investments, ongoing maintenance costs, regular costs of connectivity, and training costs. Some of these costs may be difficult to estimate in advance, including the cost of doing M&E without application of ICT (Madland, 2008). The scarcity of funding for any type of project initiative means, however, that its potential cost-effectiveness will be considered as a critical factor.

When ICTs are involved in any initiative, the perception that they are costly further amplifies the requirement for clear budgeting for M&E as a component of the costs of ‘doing business. In countries that are at risk of failing to reach Millennium Development Goal (MDG) targets, the issue of cost is especially acute (UNDP, 2003). Considering costs in M&E is not simple, as there are many and varied direct and indirect costs depending on the level of data gathering and analysis required, adoption of ICT remains the best option to level down this costs associated with monitoring and evaluation of rural based projects for quality output (Harindranath, 2007).
2.2: Critical Review of Literature

In many developing countries like Kenya, the major component of the population lives in the rural areas and depends on agricultural based projects for their livelihood. In addition, the sector accounts for most country’s exports. Many studies exist on the use of agricultural projects, but not necessarily in relation to ICTs. Therefore, it is only worthwhile to assess what examples there are in the literature of the link between use of ICTs and various rural project implementations in poor countries. There has been a recent surge of literature on the so-called ‘digital divide’ between developed and developing countries (UNDP, 2003). It is argued that the failure of the South to harness the benefits of the ongoing technological revolution in the North, places developing country populations at an ever increasing disadvantage in a globalizing world (Harindranath, 2007).

While such generalized debate is useful in drawing attention to some of the major issues, the development challenges it presents can appear overwhelming. Furthermore, rather than highlighting priority areas for intervention, such facts and figures tend to obscure and oversimplify complex and long-standing development concerns. The aim here is to try and get beyond the hyperbole that surrounds the digital divide and examine some of the issues and implications from a rural development perspective. The particular focus of this paper is information and communication technologies usage in Rural-based projects (Mundy et al, 2001). There is a substantial body of literature on the potential role of new technologies in development but limited studies on adoption and usage of ICT towards implementation and performance of rural based projects with emphasis of a typical Kenyan Rural setup.
2.3: Conceptual Framework

### Independent Variables

**Communication**
- Number of emails, calls, paper correspondence etc

**Project Planning**
- Completed and uncompleted activities

**Resource allocation and Scheduling**
- Personnel per activity, time and cost

**Monitoring and Evaluation**
- Plan Corrections, deviations, budget adjustments, lessons learned

### Intervening Variables

**Government policy**
- Regulations on use of ICT
- Support on use of ICT

### Dependent Variable

**Performance of Rural business-Based projects**
- Faster Communication
- Easier and faster planning
- Better monitoring and evaluation
- Efficient utilization of resources
- Satisfaction of stakeholders

According to Harindranath, (2007) current debates on the potential role of ICTs in implementation and performance of rural based projects tend to be constrained by an inherent mutual lack of understanding between the technology drivers and development agencies that find it difficult to establish common ground, especially when the technology and its implications for society are changing so rapidly. ICT applications in developing countries remain largely uninformed by recent developments in its application regarding project planning, communication, resource allocation and scheduling, monitoring and control that is aimed at minimization of project costs, optimization of project time and maximization of quality towards rural development. These mainstream strategies harness the potential of ICT adoption in terms of (faster communication, optimization of resources, better results and satisfaction of stakeholders) and therefore formed the framework for this study.
CHAPTER THREE

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction
This chapter discussed the research method used by the researcher to analyze the relationship between ICT adoption and performance of rural based business projects in Makueni County Kibwezi district. The research design, target population, sampling procedure, sample size data collection techniques, validity and reliability, data collection technique, ethical considerations and data analysis are the subtopics discussed under this chapter.

3.2 Research design
The study adopted a descriptive survey design to achieve the objectives of the study. According to Orodho, (2003) a descriptive survey design involves collecting information from a sample of individuals. This design was found useful because the study covered several project organizations within Kibwezi district thus making the study relatively inexpensive. A survey was selected as suitable method to describe the characteristics of a large population that no other method of observation provided this general capability.

3.3 Target Population
The target population for this study focused on officials and beneficiaries of the projects selected in the study. According to Kibwezi district development office (2011), the area has 8 registered business projects with at least each project having 4 officials, i.e. project manager, assistant and, technical officer and a clerk. Each project has a beneficiaries committee of at least 8 members who represent other beneficiaries for the projects. These study depended on the project officials and project beneficiaries committee members to get information on the extent of utilization of ICT and its contributions to project performance. The population was described on table 3.1 below.
<table>
<thead>
<tr>
<th>Project Name (Business enterprises)</th>
<th>Employees</th>
<th>Beneficiaries committee members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mbosoni irrigation project</td>
<td>15</td>
<td>-</td>
</tr>
<tr>
<td>Modern investment – Piggery project</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Philomena – Water filters project</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Welding project</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Nzukini project</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Tree planting project</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Micro enterprise project</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Mango project</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>55</strong></td>
<td><strong>65</strong></td>
</tr>
</tbody>
</table>

Table 3.1: Target population

Source: Kibwezi district development office; 2011

3.4 Sampling design

The study used both cluster and stratified sampling to select samples to participate in this study. Different business projects were clustered in terms of wards to reduce costs and increase sampling efficiency. Within each cluster, stratified sampling was then applied to enable the researcher to improve the accuracy / efficiency of estimation and focus on important subpopulations. Stratified sampling was used when representatives from each subgroup within the population need to be represented in the sample. In these cases representative samples from each project were selected to participate in the study. The population of the project selected to participate in the study were grouped into stratus of project officers and project beneficiaries.
3.4.1 Sample size

Mugenda et al (2003) observed that there are certain non-definite practices among social research workers that the beginner can adopt. One such practice suggests that if population is a few hundreds, a 40% or more samples will do; if many hundreds; a 20% will do; and if several thousands, a 5% or fewer samples will do. Accordingly, a 60% sample size was used for this study, drawn from a total target population of 120 individuals who are either project officials or project beneficiaries’ committee members. Using stratified sampling, 60% sampling fraction was picked from each representative stratum i.e. from the strata representing project officials and strata representing project beneficiaries. This gave 33 project officials sampled from 55 officials. On other hand 60% of 65 respondents representing project beneficiaries’ strata were selected to give a total of 39 respondents. This realized a total sample size of 72 respondents. This is as presented on table 3.2 below.

<table>
<thead>
<tr>
<th>Strata</th>
<th>Total population</th>
<th>Sample fraction</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project officials</td>
<td>55</td>
<td>60%</td>
<td>33</td>
</tr>
<tr>
<td>Project beneficiaries</td>
<td>65</td>
<td>60%</td>
<td>39</td>
</tr>
<tr>
<td>committee</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>120</strong></td>
<td></td>
<td><strong>72</strong></td>
</tr>
</tbody>
</table>

Table 3.2: Sample size

3.5: Data collection technique

3.5.1: Research instruments

According to Chandran (2004), structured questionnaires provide a high degree of data standardization and adoption of generalized information amongst any population. On this basis, the researcher designed a questionnaire with both open and closed ended questions on all the variables used to collect the data. It was divided into three sections. Part A contained items eliciting demographic information. Part B sought to solicit data on independent variables while part C explored the depended variable.
3.5.2: Pre-Testing

The questionnaires were issued to 3 project officials and 3 project committee members outside the sampled population. The feedback obtained through these pre-test interviews were used to improve the questionnaire. In pre-testing the questionnaire, the following issues were addressed; the length of the interview, understanding and clarity of the questions to the respondents, the general flow of the questions, and checking any sensitive questions.

3.5.3: Data collection process

Data was collected by dropping the semi-structured questionnaires to identified respondents after seeking official authorization from relevant entities. After three days the filled questionnaires were picked for data coding and entry into SPSS program.

3.6: Ethical Considerations

For the purpose of this study, permission to carry out the study was sought from relevant administrative authorities at Kibwezi district headquarters and the local administration within which the projects are located. The researcher assured confidentiality to the respondents and affirmed that the study was purposely to accomplishing academic goals. The researcher acknowledged all sources of information from other scholars.

3.7: Data Analysis Techniques

Qualitative data was analyzed through giving a description literature and open ended responses of the questionnaire in relation to the relationship between ICT adoption and performance of rural based business projects. Quantitative analysis was done for the numerical data obtained from the field. With the help of SPSS, data was coded into common responses and entered into the computer program. An analysis was done to generate statistics in terms of mean, standard deviation and frequency and percentages. The output of the analysis were presented in tables and charts and interpretations made based on the research questions.
CHAPTER FOUR
DATA ANALYSIS, INTERPRETATION AND PRESENTATION

4.0: Introduction

This chapter discusses the research findings, analysis and interpretation. The study findings answered the extent to which ICT is applied in implementation of rural based projects in terms of project planning, communication, resource allocation and scheduling, monitoring and evaluation. Data analysis was done through Statistical Package for Social Scientists (SPSS). Frequencies, percentages and Likert Scales were used to display the results which were presented in tables, pie charts as well as the bar graphs.

4.1: Respondents background

The background of the respondents was represented in gender, academic qualification, project existence and work period. Findings were presented on figures 4.3 to figure 4.6 below.

4.1.1: Gender of the Respondent

The gender representation indicated 57% of the respondents were female while 43% were male. This highlights the dominance of women involvement in rural development. Further, it shows gender parity among the leadership of the projects hence an indicator of sustainability.

Figure: 4.3: Gender of Respondent

The gender representation indicated 57% of the respondents were female while 43% were male. This highlights the dominance of women involvement in rural development. Further, it shows gender parity among the leadership of the projects hence an indicator of sustainability.
4.1.2: Respondents level of education

Figure 4.4: Level of education

The highest number of respondents (51%) had O-level qualification while 38% had Diploma and certificate qualification. Only 6.2% were degree holders against 5% with postgraduate qualification. This indicated that more than 50% of the respondents were familiar with ICT adoption and usage within workplace.

4.1.3: Project existence period

Figure 4.5: Project existence period

Estimating project duration accurately is important to the success of any project. Main focus projects as highlighted by 55% of the respondents have existed for between five and ten years.
Further, 40% have been operational for less than 5 years and only 5% existed between ten and fifteen years. Activity duration estimation looks at the time it takes to complete the entire project, which is dependent on resources available. The duration of project or programme support is an important element for sustainability. The longer the duration the higher the likelihood of enhanced interaction between the various stakeholders and building people’s confidence and capacity towards empowerment. Long-term support and presence is preferable to short-term massive input.

4.1.4: ICT tools used in the projects

![Figure 4.6: ICT tools used in the projects](image)

4.1.5: ICT application in the projects cycle

![Figure 4.7: ICT application in the projects cycle](image)
Application of Special Project software was most prevalent as it was accounted by 40% of the respondents followed by manual filing system underscored by 22%. Internet and mobile phones usage was accounted by 39%. These ICT tools have been applied to large extend in facilitating communication as supported by 60% of the respondents against 40% citing usage on planning stage (Figure 4.7). In extension therefore, Information technology's main role in rural development projects is to provide people with information of any kind they require because information is necessary for development. For example, information and communication technology can help farmers in rural areas to know about new means and techniques of farming that leads into more production and thus more income. Information and communication technology can help people consult doctors in urban areas thus reducing health issues among other uses. The findings highlight the different nature of the various projects and slow uptake of information technology among the rural people and therefore the need for more empowerment.

4.2: ICT usage in planning of rural based project

4.2.1: ICT application in the projects cycle

Figure 4.8: Rate of benefits of ICT usage in project planning
4.2.2: Extent of ICT based project planning strategies

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To a great extent</td>
<td>26</td>
<td>40.0</td>
<td>40.0</td>
<td>40.0</td>
</tr>
<tr>
<td>To a moderate extent</td>
<td>39</td>
<td>60.0</td>
<td>60.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.3: Extent of ICT based project planning strategies

As shown in figure 4.8, majority of the respondents (66%) were not very much excited on usage of ICT during planning stage and therefore could only attribute minimal benefits to it. This was against 14% who were moderately inclined against 20% who could associate more benefits on ICT usage during planning. However, ICT based project planning strategies were most favoured by 40% of the respondents compared to 60% who were moderate as indicated in table 4.3. This is an emphasis that Project planning in organizations however small is much more complicated exercise, involving the large amount of data, their processing, and rounds of adjustments, revisions and sensitivity analysis. The effective use of ICT facilitates project monitoring and evaluation and to an extent the measure of success and sustainability.

4.3: Rural based Project Communication and implementation

4.3.1: Communication tools used in project implementation

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intranet services</td>
<td>14</td>
<td>21.5</td>
<td>21.5</td>
<td>21.5</td>
</tr>
<tr>
<td>Emails</td>
<td>12</td>
<td>18.5</td>
<td>18.5</td>
<td>40.0</td>
</tr>
<tr>
<td>Mobile</td>
<td>25</td>
<td>38.5</td>
<td>38.5</td>
<td>78.5</td>
</tr>
<tr>
<td>Postage</td>
<td>14</td>
<td>21.5</td>
<td>21.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.4: Communication tools used in project implementation
### 4.3.2: Rating of project communication tools used

<table>
<thead>
<tr>
<th>Communication tools employed during implementation of the projects</th>
<th>Count</th>
<th>Mean</th>
<th>Std Deviation</th>
<th>Col Sum %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intranet services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating of computer-based communication gadgets and channels</td>
<td>14</td>
<td>1</td>
<td>0</td>
<td>15.4%</td>
</tr>
<tr>
<td>Rating of postage-based communication ways</td>
<td>14</td>
<td>3</td>
<td>0</td>
<td>19.4%</td>
</tr>
<tr>
<td>Rating of verbal direct communication</td>
<td>14</td>
<td>3</td>
<td>0</td>
<td>31.8%</td>
</tr>
<tr>
<td>Rating of the project using mass media methods</td>
<td>14</td>
<td>3</td>
<td>0</td>
<td>29.0%</td>
</tr>
<tr>
<td>Performance of the project is attributed to effective communication methods</td>
<td>14</td>
<td>1</td>
<td>0</td>
<td>22.4%</td>
</tr>
<tr>
<td><strong>Emails</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating of computer-based communication gadgets and channels</td>
<td>12</td>
<td>1</td>
<td>0</td>
<td>13.2%</td>
</tr>
<tr>
<td>Rating of postage-based communication ways</td>
<td>12</td>
<td>4</td>
<td>0</td>
<td>22.1%</td>
</tr>
<tr>
<td>Rating of verbal direct communication</td>
<td>12</td>
<td>2</td>
<td>0</td>
<td>18.2%</td>
</tr>
<tr>
<td>Rating of the project using mass media methods</td>
<td>12</td>
<td>2</td>
<td>0</td>
<td>16.6%</td>
</tr>
<tr>
<td>Performance of the project is attributed to effective communication methods</td>
<td>12</td>
<td>1</td>
<td>0</td>
<td>18.4%</td>
</tr>
<tr>
<td><strong>Mobile</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating of computer-based communication gadgets and channels</td>
<td>25</td>
<td>1</td>
<td>1</td>
<td>40.7%</td>
</tr>
<tr>
<td>Rating of postage-based communication ways</td>
<td>25</td>
<td>4</td>
<td>1</td>
<td>45.6%</td>
</tr>
<tr>
<td>Rating of verbal direct communication</td>
<td>25</td>
<td>2</td>
<td>1</td>
<td>28.8%</td>
</tr>
<tr>
<td>Rating of the project using mass media methods</td>
<td>25</td>
<td>2</td>
<td>1</td>
<td>35.2%</td>
</tr>
<tr>
<td>Performance of the project is attributed to effective communication methods</td>
<td>25</td>
<td>1</td>
<td>0</td>
<td>38.2%</td>
</tr>
<tr>
<td><strong>Postage</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating of computer-based communication gadgets and channels</td>
<td>14</td>
<td>2</td>
<td>0</td>
<td>30.8%</td>
</tr>
<tr>
<td>Rating of postage-based communication ways</td>
<td>14</td>
<td>2</td>
<td>0</td>
<td>12.9%</td>
</tr>
<tr>
<td>Rating of verbal direct communication</td>
<td>14</td>
<td>2</td>
<td>0</td>
<td>21.2%</td>
</tr>
<tr>
<td>Rating of the project using mass media methods</td>
<td>14</td>
<td>2</td>
<td>0</td>
<td>19.3%</td>
</tr>
<tr>
<td>Performance of the project is attributed to effective communication methods</td>
<td>14</td>
<td>1</td>
<td>0</td>
<td>21.1%</td>
</tr>
</tbody>
</table>

Table 4.5: Rating of Project communication tools used
4.3.3: Effective communication towards project performance

Performance of the project is attributed to effective communication methods

Figure 4.9: Effective communication on project performance

Communication and information transfer is vital for the implementation and performance of the rural projects. With high rate of mobile technology penetration, its usage in project was highlighted by 38.5% of the respondents (Table 4.4) with email communication being least used at 18.5%. The use of the traditional paper based communication system was still at high at 21.5% and was cited to have given rise to problems such as human errors, lengthy time, delayed or non-arrival of information, wrong address, information overload and poor information which consequently give rise to some significant project risks. Intranet services applied was leveled at 21.5% thus indicated some elements of computer usage and database skills among some project staff interviewed. All the respondents rated ICT based communication methods highly effective modes in project management with 83% underscoring that project performance is attributed to effective communication with only 17% contravening as shown in figure 4.9. The mode of communication style affects the accuracy of the requirement baseline, the same in the project design and development process. The communication result between project members and project manager directly affect the performance of the entire project. The project manager in addition to the preparation of a good communication plan should also understand how to manage team, and how to meet the needs of customer, standing on the roles of stakeholders, so as to achieve project targets.
4.4: Use of ICT in Resource Allocation and scheduling

4.4.1: ICT adoption in Resource Allocation and scheduling

<table>
<thead>
<tr>
<th>ICT adoption is worthy in resource allocation and scheduling in projects</th>
<th>Reasons for adopting ICT in resource allocation and scheduling</th>
<th>Count</th>
<th>Mean</th>
<th>Std Deviation</th>
<th>Col Sum %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>ICT based resource allocation systems simplifies implementation of rural based projects</td>
<td>56</td>
<td>2</td>
<td>1</td>
<td>86.2%</td>
</tr>
<tr>
<td></td>
<td>Usage of non-ICT based systems in resource allocation due to insufficient funds</td>
<td>56</td>
<td>2</td>
<td>1</td>
<td>87.5%</td>
</tr>
<tr>
<td></td>
<td>Insufficient knowledge on ICT based resource allocation systems prohibiting its adoption</td>
<td>56</td>
<td>2</td>
<td>1</td>
<td>84.4%</td>
</tr>
<tr>
<td>No</td>
<td>Reasons for adopting ICT in resource allocation and scheduling</td>
<td>9</td>
<td>2</td>
<td>1</td>
<td>13.8%</td>
</tr>
<tr>
<td></td>
<td>ICT based resource allocation systems simplifies implementation of rural based projects</td>
<td>9</td>
<td>1</td>
<td>1</td>
<td>12.5%</td>
</tr>
<tr>
<td></td>
<td>Usage of non-ICT based systems in resource allocation due to insufficient funds</td>
<td>9</td>
<td>2</td>
<td>1</td>
<td>15.6%</td>
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<td></td>
<td>Insufficient knowledge on ICT based resource allocation systems prohibiting its adoption</td>
<td>9</td>
<td>2</td>
<td>1</td>
<td>14.8%</td>
</tr>
</tbody>
</table>

Table 4.6: ICT adoption in Resource Allocation and scheduling

ICT adoption objectively facilitates resource allocation mechanisms that provide an automated provisioning of resources. The findings as show in table 4.6 above, over 86% of the respondents agreed that ICT adoption facilitates resource allocation against less than 14%. Among those who supported the ICT adoption, 88% suggested that adoption of ICT simplifies project implementation. However, 85% against 12% of the respondents felt that insufficient knowledge among rurals prohibit full exploitation. Use of non-ICT systems leads to misappropriation of
resources as indicated by 84% against 16% of the respondents. This puts more emphasis that the main purposes of any ICT system are to schedule developers’ applications while aiming for the best utilization of available resources. A developer’s application covers, aside from the software, some additional information about the application’s needs and services as stipulated in project guidelines. The control of project execution, the project plan and budget implementation have to be major concern of a Board of Directors. Resource scheduling and allocation requires a skilled team of professionals, integrated strategy management process, tools, technologies and support. Project managers face the problem of selecting the most suitable physical and virtual resources to accommodate the indented applications. The use of extensive communications networks, accessible distributed databases help to provide, store and send information more reliably, quickly and economically, as well as to have performance report accurate and in time. ICT helps in: reduction of manual and paper-intensive forms; more effective work processes; greater transparency; effective governance procedures to ensure the optimum use of available project overall resources. Another tool used to reduce resource conflicts is risk management. As a general practice, one begins every project by identifying my critical resources and developing a contingency plan for replacement or substitution of those resources in the event of an emergency. While most organizations are only lucky enough to have qualified systems, it is possible to identify consultants and upgrade the skills of other personnel to remove an overreliance on one person. The project plan is the corner stone of the financial and management control by providing a tool to investigate any deviation between actual results and forecasts, in order to keep the project in track with its strategic orientations and to reach objectives, which is necessary for strategy focused organizations.

By establishing nothing more than the most minimal practice of risk management, resource problems can be brought to light early in the project life cycle rather than later when the solutions are more limited and more expensive. On another perspective, resource over allocation is a failure of prioritization, a failure of planning, and a failure to accept that reality always imposes constraints. The nimble project manager understands that things will always change and that even in the best of ICT systems there will be times when multiple projects are competing for the same resource. The only way to really solve this problem is by eliminating unnecessary conflicts in the initial planning stages through prioritization and project timing and by establishing the discipline to make conscious decisions about which projects slip and which stay
on track effectively aided by ICT adoption. The challenge for information providers in rural project development is how to share information with people who have little access to ICTs, low levels of literacy, little time or money, and highly contextualized knowledge and language requirements. For many years reaching people living in poverty with information is characteristic problem.

4.5: Adoption of ICT in Monitoring and evaluation of projects

4.5.1: Examination of ICT-aided monitoring and evaluation

<table>
<thead>
<tr>
<th>Presence of ICT based monitoring and evaluation system in the project</th>
<th>Count</th>
<th>Mean</th>
<th>Std Deviation</th>
<th>Col Sum %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>ICT based Monitoring and evaluation strategies applied</td>
<td>51</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Extent of Internal computer based system contributing to successful implementation</td>
<td>51</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Extent of outsourcing monitoring and evaluation services</td>
<td>51</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Extent of physical Audits strategies contributing to successful implementation</td>
<td>51</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Rating performance of the project due to effective monitoring and evaluation</td>
<td>51</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>ICT based Monitoring and evaluation strategies applied</td>
<td>14</td>
<td>4</td>
<td>0</td>
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<tr>
<td></td>
<td>Extent of Internal computer based system contributing to successful implementation</td>
<td>14</td>
<td>2</td>
<td>0</td>
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<tr>
<td></td>
<td>Extent of outsourcing monitoring and evaluation services</td>
<td>14</td>
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</tr>
<tr>
<td></td>
<td>Extent of physical Audits strategies contributing to successful implementation</td>
<td>14</td>
<td>2</td>
<td>0</td>
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<tr>
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<td>Rating performance of the project due to effective monitoring and evaluation</td>
<td>14</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 4.7: Examination of ICT-aided Monitoring and evaluation

The study findings in table 4.6 established that 61% of the respondents noted some adoption and usage of ICT on project monitoring and evaluation against 39%. Majority of the positive
respondents accounting for 86% against 14% indicated outsourcing of monitoring and evaluation services. Extent of Internal computer based system contributing to successful implementation was highly regarding by 80% against 20% while 86% against 14% agreed that physical Audits strategies contributing to successful implementation. Project performance enhancement due to effective monitoring and evaluation through adoption of ICT systems was favoured by 73% against 27% of the respondents.

Monitoring should be executed by all individuals and institutions which have an interest (stake holders) in the project. To efficiently implement a project, the people planning and implementing it should plan for all the interrelated stages from the beginning. As discussed in literature review, a project is a series of activities that aim at solving particular problems within a given time frame and in a particular location. The investments include time, money, human and material resources. Before achieving the objectives, a project goes through several stages. Monitoring therefore should take place at and be integrated into all stages of the project cycle. The argument presented is based on the notion that there is a need to move away from a functional approach to one that recognizes the pivotal importance of project process in delivering benefits.

Project monitoring systems are expensive to implement both in terms of finance and time. All too often the projects fail and a management system is left to gather dust in the corner of the computer room. Using an outsourced and secure online monitoring solution, an organization can quickly deploy a pre-existing enterprise level solution without employing consultants on an endless project. Project monitoring can be deployed and taking care of your infrastructure in a matter of hours without all of the fuss or expenditure normally associated with traditional management system projects. The best bit is that you only pay for what you use and you only monitor those servers that are important to you.

Physical audits are essential for the financial health of a given project, but that doesn’t mean they have to be time-consuming and costly. With the technology available to organizations through the use of fixed asset tracking software and bar-code scanners, physical audits can now be completed faster and more accurately.

The development and application of ICT makes it possible for companies to support operations with IT systems in order to improve operating performance. The approval, recording and processing of transactions, as well as the generation of reports can be automated, to ensure
operational effectiveness and efficiency, financial information reliability, and legal compliance. Project entities have to adjust the techniques and methods of internal controls in accordance with computerization, in order to exercise effective controls. The internal control techniques used in an IT environment are quite different from those used in a manual environment. Transactions are automatically triggered or executed in an IT environment, and the internal controls are supported with ICT.

4.5.2: Future project performance due to ICT adoption

![Future Project Performance](image)

Figure 4.10: Future Project performance due to ICT adoption

The development and application of information technology changes the extensibility of information systems that support projects especially rural-based. Along this statement, 82% of the respondents predicted bright future of rural project implementation as a result of ICT adoption unlike 18% who had moderate in their judgment. The extensibility of information systems that support project activities refers to the level of openness of the extensibility of information systems networks. In other words, it is an indicator of whether transaction data can be entered in a timely manner. An open ICT system allows operators to immediately input transaction data no matter where the transactions take place. To ensure the security and reliability of operations, it is necessary for the internal control mechanism to acquire transaction data on a timely basis. A timely internal control mechanism should be deployed to ensure the efficacy of internal controls. The integrated processing capability of transaction data refers to the capability to integrate and process the data of related transactions via networks and databases.
4.5.3: Rural Project adoption of ICT in terms of cost, time and Quality

<table>
<thead>
<tr>
<th>Existence of ICT usage strategies to facilitate performance</th>
<th>Rating of the contribution of ICT adoption in line with cost</th>
<th>Count</th>
<th>Mean</th>
<th>Std Deviation</th>
<th>Col Sum %</th>
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</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Rating of the contribution of ICT adoption in line with cost</td>
<td>52</td>
<td>2</td>
<td>1</td>
<td>72.7%</td>
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<td>Rating of the contribution of ICT adoption in line with time</td>
<td>52</td>
<td>2</td>
<td>1</td>
<td>89.8%</td>
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<td>Rating of the contribution of ICT adoption in line with quality</td>
<td>52</td>
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<td>0</td>
<td>83.5%</td>
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<td>Rating of the contribution of ICT adoption in line with cost</td>
<td>13</td>
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<td>27.3%</td>
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<td>Rating of the contribution of ICT adoption in line with time</td>
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<td>0</td>
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<td>Rating of the contribution of ICT adoption in line with quality</td>
<td>13</td>
<td>1</td>
<td>0</td>
<td>16.5%</td>
</tr>
</tbody>
</table>

Table 4.8: Rural Project adoption of ICT in terms of cost, time and Quality

Among projects that do not currently use any of the technologies captured by the Survey (computers, the Internet or the web), as much as 27% and below do not perceive the use of ICT as appropriate or necessary for their project success in terms of cost, time and quality optimization. However, 90% against 10% of the respondents associated ICT adoption in time saving; 84% against 17% felt ICT adoption aids in quality optimization and 73% against 27% felt costs are minimized. Despite the low uptake of ICT, It was evident from respondents that ICTs provide a wide range of advantages for doing business, such as faster and better access to information, reductions in costs and time and improved project operations. Some of the prominent barriers highlighted were affordability and the lack of skills and trained staff. High expenditure seems to be a barrier of greater importance in terms of accessing the ICT systems and therefore more ICT-related skills and training are needed in rural based projects without Internet connection and web presence.
CHAPTER FIVE

SUMMARY OF FINDINGS CONCLUSION AND RECOMMENDATIONS

5.0 Introduction
This chapter has discussed the summary of the findings, conclusion and recommendation on information communication technology adoption and performance of rural based business projects with a case of Kibwezi District-Makueni County.

5.1 Summary of the findings
5.1.1 Background information
The gender representation indicated 57% of the respondents were female while 43% were male. The highest number of respondents (51%) had O-level qualification while 38% had Diploma and certificate qualification. Only 6.2% were degree holders against 5% with postgraduate qualification. Estimating project duration accurately is important to the success of any project. Main focus projects as highlighted by 55% of the respondents have existed for between five and ten years. Further, 40% have been operational for less than 5 years and only 5% existed between ten and fifteen years. Application of Special Project software was most prevalent as it was accounted by 40% of the respondents followed by manual filing system underscored by 22%. Internet and mobile phones usage was accounted by 39%. These ICT tools have been applied to large extent in facilitating communication as supported by 60% of the respondents against 40% citing usage on planning stage (Figure 4.7).

5.1.2: ICT usage in planning of rural based project
As shown in figure 4.8, majority of the respondents (66%) were not very much excited on usage of ICT during planning stage and therefore could only attribute minimal benefits to it. This was against 14% who were moderately inclined against 20% who could associate more benefits on ICT usage during planning. However, ICT based project planning strategies were most favoured by 40% of the respondents compared to 60% who were moderate as indicated in table 4.3.
5.1.3: Rural based Project Communication and implementation

Communication and information transfer is vital for the implementation and performance of the rural projects. With high rate of mobile technology penetration, its usage in project was highlighted by 38.5% of the respondents (Table 4.4) with email communication being least used at 18.5%. The use of the traditional paper based communication system was still at high at 21.5% and was cited to have given rise to problems such as human errors, lengthy time, delayed or non-arrival of information, wrong address, information overload and poor information which consequently give rise to some significant project risks. Intranet services applied was leveled at 21.5% thus indicated some elements of computer usage and database skills among some project staff interviewed.

5.1.4: Use of ICT in Resource Allocation and scheduling

ICT adoption objectively facilitates resource allocation mechanisms that provide an automated provisioning of resources. The findings as show in table 4.5% above, over 86% of the respondents agreed that ICT adoption facilitates resource allocation against less than 14%. Among those who supported the ICT adoption, 88% suggested that adoption of ICT simplifies project implementation. However, 85% against 12% of the respondents felt that insufficient knowledge among rural areas prohibit full exploitation. Use of non-ICT systems leads to misappropriation of resources as indicated by 84% against 16% of the respondents.

5.1.5: Adoption of ICT in Monitoring and evaluation of projects

The study findings in table 4.6 established that 61% of the respondents noted some adoption and usage of ICT on project monitoring and evaluation against 39%. Majority of the positive respondents accounting for 86% against 14% indicated outsourcing of monitoring and evaluation services. Extent of Internal computer based system contributing to successful implementation was highly regarded by 80% against 20% while 86% against 14% agreed that physical Audits strategies contributing to successful implementation. Project performance enhancement due to effective monitoring and evaluation through adoption of ICT systems was favoured by 73% against 27% of the respondents. The development and application of information technology changes the extensibility of information systems that support projects especially rural-based. Along this statement, 82% of the respondents predicted bright future of rural project
implementation as a result of ICT adoption unlike 18% who had moderate in their judgment. Among projects that do not currently use any of the technologies captured by the Survey (computers, the Internet or the web), as much as 27% and below do not perceive the use of ICT as appropriate or necessary for their project success in terms of cost, time and quality optimization. However, 90% against 10% of the respondents associated ICT adoption in time saving; 84% against 17% felt ICT adoption aids in quality optimization and 73% against 27% felt costs are minimized.

5.2: Conclusions

The findings showed the dominance of women involvement in rural development. Further, it highlighted gender parity among the leadership of the projects hence an indicator of sustainability. Educational qualification indicated that more than 50% of the respondents were familiar with ICT adoption and usage within work place. Activity duration estimation looks at the time it takes to complete the entire project, which dependent on resources available. The duration of project or programme support is an important element for sustainability. In extension therefore, Information technology's main role in rural development projects is to provide people with information of any kind they require because information is necessary for development. for example information and communication technology can help farmers in rural areas to know about new means and techniques of farming that leads in more production and thus more income, information and communication technology can help people consult doctors in urban areas thus reducing health issues among other uses.

As an emphasis, Project planning in organizations however small is a much more complicated exercise, involving the large amount of data, their processing, and rounds of adjustments, revisions and sensitivity analysis. ICT adoption plays a key role in national development through implementation and performance of rural based projects.

The communication and information transfer are vital for the implementation and performance of the rural projects. The use of the traditional paper based communication system has given rise to problems such as human errors, lengthy time, delayed or non-arrival of information, wrong address, information overload and poor information which consequently give rise to some significant project risks such as time and cost overrun and poor quality material and
workmanship. The mode of communication style affects the accuracy of the requirement baseline, the same in the project design and development process. The communication result between project members and project manager directly affect the performance of the entire project.

The main purpose of any ICT system is to schedule developers’ applications while aiming for the best utilization of available resources. A developer’s application covers, aside from the software, some additional information about the application’s needs and services as stipulated in project guidelines. The use of extensive communications networks, accessible distributed databases help to provide, store and send information more reliably, quickly and economically, as well as to have performance report accurate and in time. ICT helps in: reduction of manual and paper-intensive forms; more effective work processes; greater transparency; effective governance procedures to ensure the optimum use of available project overall resources. Another tool used to reduce resource conflicts is risk management. The project plan is the cornerstone of the financial and management control by providing a tool to investigate any deviation between actual results and forecasts, in order to keep the project in track with its strategic orientations and to reach objectives, which is necessary for strategy focused organizations.

By establishing nothing more than the most minimal practice of risk management, resource problems can be brought to light early in the project life cycle rather than later when the solutions are more limited and more expensive. On another perspective, resource over-allocation is a failure of prioritization, a failure of planning, and a failure to accept that reality always imposes constraints. The project manager understands that things will always change and that even in the best of ICT systems there will be times when multiple projects are competing for the same resource. The challenge for information providers in rural project development is how to share information with people who have little access to ICTs, low levels of literacy, little time or money, and highly contextualized knowledge and language requirements. For many years reaching people living in poverty with information is a characteristic problem.

To efficiently implement a project, the people planning and implementing it should plan for all the interrelated stages from the beginning. As discussed in literature review, a project is a series of activities that aim at solving particular problems within a given time frame and in a particular
location. The investments include time, money, human and material resources. Before achieving the objectives, a project goes through several stages.

Project monitoring systems are expensive to implement both in terms of finance and time. All too often the projects fail and a management system is left to gather dust in the corner of the computer room. Using an outsourced and secure online monitoring solution, an organization can quickly deploy a pre-existing enterprise level solution without employing consultants on an endless project. Project monitoring can be deployed and taking care of one’s infrastructure in a matter of hours without all of the fuss or expenditure normally associated with traditional management system projects. With the technology available to organizations through the use of fixed asset tracking software and bar-code scanners, physical audits can now be completed faster and more accurately.

The development and application of ICT makes it possible for companies to support operations with IT systems in order to improve operating performance. The internal control techniques used in an IT environment are quite different from those used in a manual environment. Transactions are automatically triggered or executed in an IT environment, and the internal controls are supported with ICT.

The extensibility of information systems that support project activities refers to the level of openness of the extensibility of information systems networks. In other words, it is an indicator of whether transaction data can be entered in a timely manner. An open ICT system allows operators to immediately input transaction data no matter where the transactions take place.

Despite the low uptake of ICT, It was evident from respondents that ICTs provide a wide range of advantages for doing business, such as faster and better access to information, reductions in costs and time and improved project operations. Some of the prominent barriers highlighted were affordability and the lack of skills and trained staff.

5.3: Recommendations

The longer the duration the higher the likelihood of enhanced interaction between the various stakeholders and building people’s confidence and capacity towards empowerment. Long-term support and presence is preferable to short-term massive input. Since information technology's
main role in rural development projects is to provide people with information of any kind they require, the findings highlighted the different nature of the various projects and slow uptake of information technology among the rural and therefore need of more empowerment.

The effective use of ICT should be applied to facilitates project monitoring and evaluation and to an extent the measure of success and sustainability. Further, there is need to identify contextual strategies that facilitate ICT being developmental. The key to better performance in Kenyan rural development lies in boosting smallholder productivity projects and developing non-farm activities. By making financial services widely available to rural communities to enable the growth of smallholder enterprises, the Government of Kenya should aim to stimulate rural economies through adoption of ICT in all project endeavors.

The project manager in addition to the preparation of a good communication plan should also understand how to manage team, and how to meet the needs of customer, standing on the roles of stakeholders, so as to achieve project targets. The control of project execution, the project plan and budget implementation have to be major concern of a Board of Directors. Resource scheduling and allocation requires a skilled team of professionals, integrated strategy management process, tools, technologies and support Project managers face the problem of selecting the most suitable physical and virtual resources to accommodate the indented applications.

As a general practice, one should begin every project by identifying the critical resources and developing a contingency plan for replacement or substitution of those resources in the event of an emergency. While most organizations are only lucky enough to have qualified systems, it is possible to identify consultants and upgrade the skills of other personnel to remove an overreliance on one person. The only way to really solve the problem of unnecessary conflicts in the initial planning stages is through prioritization and project timing and by establishing the discipline to make conscious decisions about which projects slip and which stay on track effectively aided by ICT adoption.

Monitoring should be executed by all individuals and institutions which have an interest in the project. Monitoring therefore should take place at and be integrated into all stages of the project cycle. The argument presented is based on the notion that there is a need to move away from a functional approach to one that recognizes the pivotal importance of project process in delivering
benefits. Physical audits are essential for the financial health of a given project, but that doesn’t mean they have to be time-consuming and costly. The approval, recording and processing of transactions, as well as the generation of reports can be automated, to ensure operational effectiveness and efficiency, financial information reliability, and legal compliance. Project entities have to adjust the techniques and methods of internal controls in accordance with computerization, in order to exercise effective controls.

To ensure the security and reliability of operations, it is necessary for the internal control mechanism to acquire transaction data on a timely basis. A timely internal control mechanism should be deployed to ensure the efficacy of internal controls. The integrated processing capability of transaction data refers to the capability to integrate and process the data of related transactions via networks and databases. High expenditure seems to be a great barrier to accessing the ICT systems and therefore more ICT-related skills and training are needed in rural based projects without Internet connection and web presence.

5.4 Recommendations for further studies

A further study should be carried to establish the factors that influence ICT adoption by small and medium enterprises in rural areas. Additionally, a study to assess how gender relations relate to diffusion and adoption of ICT and women’s empowerment will be necessary. It is also recommended to investigate the impact as a result of adoption of ICT among rural based projects.
REFERENCES


Appendix I: Introduction letter

Jones O. Mobegi

Kenyatta University

The District Officer

Kibwezi District

P.o Box 36

Kibwezi

RE: PERMISSION TO CARRY OUT RESEARCH

I am Jones Mobegi, A Master of Business Administration, (project management) student at Kenyatta University. As a requirement for the award of my degree; I am supposed to carry out a research intended at solving a problem and building on knowledge in my field of specialty. I am therefore carrying out a research on “Analysis of Information Communication Technology adoption and the performance of Rural-based business projects with a case study of Kibwezi District”. I therefore request you to allow me to gather information by administering a questionnaire in your area of jurisdiction.

Yours Faithfully

Jones Mobegi
Appendix II: Questionnaire

RE: INTRODUCTION

Dear Respondent

This questionnaire aims at providing information on the effects of usage of Information communication technology towards implementation and performance of Rural-based projects in Kibwezi district. The information provided will solely be used to accomplish academic goals and will be confidential. You are kindly requested to fill in the questions depending on the instructions given.

PART A: Background information

Please answer the following items. Tick (✓) in the appropriate space.

1. Please indicate your gender
   a) Male
   b) Female

2. What is your level of education qualification?
   a. Certificate
   b. Diploma
   c. Degree
   d. Masters
   e. Others

3. How long has your project been operational?
   a. 1-5 years
   b. 5-10 Years
   c. 10-15 years
d. Over 15 years □

e. Others (Please specify) .................................................................

4. For how long have you been an official, beneficiary, committee member of this project?

a. 1-5 years □

b. 5-10 years □

c. 10-15 years □

d. Over 15 years □

5. According to your experience what information communication technology tools are applied in the projects you are undertaking?

a. Special Project software □

b. Internet □

c. Mobile Phones □

d. Database □

e. Voice devices □

f. Manual files □

g. Others (Please specify) .................................................................

6. Do you have ICT usage strategies to facilitate performance and completion of projects?

a. Yes □

b. No □

c. I don’t know
7. If yes in question 6 above, How do you apply the strategies during the project cycle
   a. We use ICT in project planning
   b. We used modern ICT to communicate project deliverables effectively
   c. We use ICT in resource allocation and scheduling
   d. We use ICT in Monitoring and evaluation of the project progress
   e. Others

   Please explain

9. How do you consider the benefits of ICT usage?
   a. Maximum
   b. Medium
   c. Minimal
   d. There is no comparison

To what extent do you think ICT based project planning strategies contribute to the implementation and performance of your projects?
   a. To a great extent
   b. To a moderate extent
   c. To a small extent
   d. To a negligible extent
PART B: Relationship of ICT usage in implementation and performance of rural based projects.

Part B (i)

ICT usage in planning of rural based project

8. Do you have elements of ICT usage in your project planning stage?
   a. Yes
   b. No
   c. Please explain .................................................................

9. How do you rate the benefits of ICT usage during project planning?
   a. Very many
   b. Moderately many
   c. Minimal
   d. There is no comparison

10. To what extent do you think ICT based project planning strategies contribute to implementation and performance of your projects
    a. To a very great extent
    b. To a great extent
    c. To a moderate extent
    d. To a small extent
Part B (ii)

Communication in implementation and performance of rural based projects

11. Which communication tools do you employ during implementation of your projects with relevant stakeholders?

a. Intranet services

b. Emails

c. Mobile

d. Social media (Twitter, Skype, face book)

e. Mass Media

f. Postage

12. How do you rate the effectiveness of the following communication strategies in facilitating implementation and performance of projects in your area? Use: 1- Very effective, 2- effective, 3- Moderately effective, 4- Less effective, 5- Not effective at all. Please tick where appropriate.

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<th>Effective</th>
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<td>Verbal direct communication</td>
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<td>Use of mass media methods</td>
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</table>
13. Do you think the performance of your project so far can be attributed to effective communication methods?

a. Yes 

b. No 

Elaborate

-----------------------------------------------------------------------------------------
-----------------------------------------------------------------------------------------
-----------------------------------------------------------------------------------------

Part B (iii)

Role of ICT usage in Resource allocation and Scheduling in implementation of rural based projects

14. Is ICT adoption worthy in resource allocation and scheduling while undertaking your projects?

a. Yes 

b. No 

15. If yes in question 15 above, what are some of the reasons for adopting ICT in resource allocation and scheduling in your projects?

a. High level of Accuracy in resource allocation

b. Easy to track project activities and their associate costs

c. Monitors any project deviation and possible anomalies

d. facilitates remedial measures
16. Please indicate your level of agreement in the following statements. Use the scale: 1- strongly agree 2- Agree 3- Undecided 4- Disagree 5 – Strongly disagree

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
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<tbody>
<tr>
<td>ICT based resource allocation systems simplifies implementation of rural</td>
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</tr>
<tr>
<td>based projects</td>
<td></td>
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</tr>
<tr>
<td>Most organizations use none ICT based systems in Resource allocation</td>
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<tr>
<td>and scheduling due to insufficient funds.</td>
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<tr>
<td>Insufficient knowledge regarding ICT based Resource allocation systems</td>
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<tr>
<td>prohibit its adoption.</td>
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</tbody>
</table>
Part B (iv)

Project monitoring and evaluation using ICT based systems

17. Do you have an ICT based monitoring and evaluation system in your project implementation cycle?

a. Yes [ ]

b. No [ ]

18. What are the ICT based Monitoring and evaluation strategies do you apply?

a. Internal computer based system [ ]

b. Outsourcing the services [ ]

c. Physical Audit [ ]

d. None [ ]

19. Please indicate the extent to which the following ICT based Monitoring and evaluation strategies help in successful implementation of rural based projects?

<table>
<thead>
<tr>
<th>Risk management strategies</th>
<th>To a very great extent</th>
<th>To a great extent</th>
<th>To a moderate extent</th>
<th>To a small extent</th>
<th>Does not affect at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal computer based system</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outsourcing Monitoring and evaluation services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Audits</td>
<td></td>
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</tr>
</tbody>
</table>
20. How do you rate the performance of your project as a result of effective monitoring and evaluation ICT based systems?

   a. Very High
   b. High
   c. Average
   d. Low
   e. Very low

   [Blank space for selection]
PART C

Performance of rural based projects

21. According to your gained experience, how do you predict the performance of future projects in your area due to adoption of ICT?

   a. Very good
   b. Good
   c. Fair
   d. Poor
   e. Very poor

22. In line with cost, time and quality, how do you rate the contribution of ICT adoption towards implementation and performance of rural based projects?

<table>
<thead>
<tr>
<th></th>
<th>Cost</th>
<th>Time</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Very High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Average</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Low</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Very low</td>
<td></td>
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</tr>
</tbody>
</table>

***End & Thank you***
### Appendix III: Work Plan

<table>
<thead>
<tr>
<th>Activities</th>
<th>2011/12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>July</td>
</tr>
<tr>
<td>Concept paper writing</td>
<td>✓</td>
</tr>
<tr>
<td>Proposal Writing</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Proposal Presentation</td>
<td></td>
</tr>
<tr>
<td>Data Collection</td>
<td></td>
</tr>
<tr>
<td>Data Analysis</td>
<td></td>
</tr>
<tr>
<td>Report Writing</td>
<td></td>
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<tr>
<td>Report Submission</td>
<td></td>
</tr>
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</table>
## Appendix IV: Budget

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Cost (Kshs.)</th>
<th>Total (Kshs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Personnel</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Research assistants</td>
<td>3 days</td>
<td>@3000</td>
<td>9000.00</td>
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<tr>
<td><strong>2. Travel</strong></td>
<td>10 days</td>
<td>@1000</td>
<td>10,000.00</td>
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<tr>
<td><strong>3. Materials</strong></td>
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<tr>
<td>Photocopy paper</td>
<td>1 ream</td>
<td>@300</td>
<td>300.00</td>
</tr>
<tr>
<td>Ball pens</td>
<td>3</td>
<td>@15.00</td>
<td>45.00</td>
</tr>
<tr>
<td>Foolscap</td>
<td>1 ream</td>
<td>@300.00</td>
<td>300.00</td>
</tr>
<tr>
<td>Calling card (Telkom)</td>
<td></td>
<td></td>
<td>1,000.00</td>
</tr>
<tr>
<td>Scratch card</td>
<td></td>
<td></td>
<td>1,000.00</td>
</tr>
<tr>
<td>Internet</td>
<td></td>
<td></td>
<td>1000.00</td>
</tr>
<tr>
<td><strong>4. Data analysis</strong></td>
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</tr>
<tr>
<td>Statistical analysis</td>
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<td>15,000.00</td>
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<tr>
<td><strong>5. Report Preparation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typing</td>
<td></td>
<td></td>
<td>2500.00</td>
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<tr>
<td>Printing</td>
<td></td>
<td></td>
<td>1000.00</td>
</tr>
<tr>
<td>Binding</td>
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<td></td>
<td>100.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>41,145</strong></td>
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</tbody>
</table>