ASSESSMENT OF FACTORS AFFECTING IMPLEMENTATION OF ICT PROJECTS IN TELKOM KENYA LTD, NAIROBI COUNTY, KENYA

BY

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A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILMENT FOR THE REQUIREMENTS OF THE DEGREE OF MASTER OF ARTS DEGREE IN PROJECT PLANNING AND MANAGEMENT OF THE UNIVERSITY OF NAIROBI.

2012

DECLARATION

This project report is my original work and has not been presented for the award of a degree in this University or any other Institution of higher learning.

Signature ..... Date 27/07/2012

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This project report has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

This project report is dedicated to my family, my lovely wife Nida Ndemo, my daughter Ayana Ndemo and all those who supported in the completion of this project writing. Thank you and God bless you abundantly.

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It has been an exciting and instructive study period in the University of Nairobi and I feel privileged to have had the opportunity to carry out this study as a demonstration of knowledge gained during the period studying for my master's of arts degree. With these acknowledgments, it would be impossible not to remember those who in one way or another, directly or indirectly, played a role in the realization of this research project. Let me, therefore, thank them all equally.

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TABLE OF CONTENTS **PAGE**

DECLARATION ii
DEDICATION iii
ACKNOWLEDGMENTS iv
LIST OF TABLES viii
LIST OF FIGURES ix
ABBREVIATIONS AND ACRONYMS x
ABSTRACT xi

CHAPTER ONE: INTRODUCTION 1
1.1 Background of the Study 1
1.2 Telkom Kenya Ltd 2
1.3 Statement of the Problem 3
1.4. Objectives of the Study 4
1.4.1 General Objective 4
1.4.2 Specific Objectives 4
1.5 Research questions 4
1.6 Significance of the study 5
1.7 Limitation of the study 5
1.8 Delimitation of the study 5
1.9 Basic assumptions of the study 6
1.10 Definition of significant terms 6
1.11 Organization of the Study 7

CHAPTER TWO: LITERATURE REVIEW 8
2.1 Introduction 8
2.2 ICT projects 8
2.3 Information Technology Project Management Process 10
2.4 Integration of Innovation diffusion Theory with Change Management 12
2.5 Technical team 13
2.6 Project Planning 15

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2.7 Management Support 16
2.8 IT Infrastructure 18
2.9 Empirical Review 19
2.10 Knowledge Gap 20
2.11 Conceptual Frame Work 21

CHAPTER THREE: RESEARCH METHODOLOGY 23
3.1 Introduction 23
3.2 Research Design 23
3.3 Target Population 23
3.4 Sampling Procedure 24
3.5 Data Collection Methods 25
3.6 Validity of Instruments 25
3.7 Reliability of Instruments 26
3.8 Data Analysis 26
3.9 Ethical Consideration 27
3.10 Operational Definition of Variables 27

CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND INTERPRETATION ... 30
4.1 Introduction 30
4.2 Demographic Characteristics 30
4.3 Type of ICT project, respondent role and level of involvement 33
4.3.1 Employee role in the ICT Project 34
4.3.2 Level of employees involvement in ICT Project identification and Management 34
4.3.3 Employees involvement in the stages of implementation in ICT Projects 35
4.4 Factors Affecting Implementation of ICT Projects 35
4.4.1 Technical Team 36
4.4.2 Project Planning 37
4.4.3 Management Support 38
4.4.4 Information Technology Infrastructure 39
4.4.5 Other factors that affected the implementation of ICT Projects 40

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CHAPTER FIVE:SUMMARY OF FINDINGS, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS 42
5.1 Introduction 42
5.2 Summary of Findings 42
5.3 Discussions 42
5.3.1 Technical Team 44
5.3.2 Project Planning 44
5.3.3 Management Support 45
5.3.4 Information Technology Infrastructure 46
5.3.3 Others Challenges in implementing ICT Projects 46
5.4 Conclusions 46
5.5 Recommendations 47
5.6 Suggestions for further Research 48

REFERENCES 50
APPENDICES 56
APPENDIX 1: Letter of Introduction 56
APPENDIX 2: Research Questionnaire for Telkom Kenya Ltd Employees 57

LIST OF TABLES

PAGES

Table 3.1 Target Population 24
Table 3.2. Sample Population 25
Table 3.3 Operational definition of variables 28
Table 4.1: Distribution of Gender 30
Table 4.2: Distribution of Age Group 31
Table 4.3: Level of Education of the Respondents 31
Table 4.4: Department Worked 32
Table 4.5: Length of Service in the Current Job 32
Table 4.6: Career in Industry 33
Table 4.7: Description of ICT Project Category Implemented by Users 33
Table 4.8: Roles and levels of respondents in ICT Project(s) 34
Table 4.9: Stages of Employees Involvement 35
Table 4.10: Project Team and Composition Statistics 36
Table 4.11: Project Planning Statistics 37
Table 4.12: Management Support Statistics 38
Table 4.13: Information Technology Infrastructure influences the success of ICT projects 40
Table 4.14 presents the findings on the duration of respondents work in the present capacity. .. 41
Table 5.1: Summary of finding 42

LIST OF FIGURES

PAGE

Figure 1 Conceptual Framework..... 20

ABBREVIATIONS AND ACRONYMS

ERP	Enterprise Resource Planning
ICT	Information Communication Technology
IT	Information Technology
ISP	Institutional Strengthening Project
SCADA	Systems Control And Data Acquisition

ABSTRACT

The aim of this study was to investigate factors affecting implementation of ICT projects in Telkom Kenya Ltd. Organizations are complex in nature, their operations and strategic focus could be greatly enhanced by well focused application of Information and Communication Technologies (ICT) to support improvements in productivity, management effectiveness and ultimately, the quality of services offered. The issue of ICT failure can be analyzed by assuming that learning from IS failures will provide us with important lessons for formulating successful strategies for the planning, development, implementation and management of information systems. The objectives of the study are to assess extend the technical team influence successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County ,to investigate the effect of project planning on successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County, to study the influence of management support on successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County and to find out the impact of Information Technology infrastructure on successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County. A case study was used to obtain an in-depth investigation of an individual, institution or phenomenon. The primary purpose of study was to determine the factors that influence the implementation of ICT projects at Telkom Kenya Ltd. The researcher used stratified random sampling technique to select a sample size of 91 employees from the population of 300 employees of Telkom Kenya Ltd who are currently working at Telkom Kenya Ltd headquarters. Data quality was incorporated especially during the data collection. Descriptive statistics was used to analyze the data. Data was analyzed using Tables, percentages and means. The main findings show that the Project team were found to be committed and achieved their targets and goals in good time to a high extent. The study also found out that top management ensured establishment of effective communication structures to ensure flow of communication. Project Management and leadership as a factor affecting implementation of ICT projects was addressed to a high extent in Telkom Kenya Ltd. The study findings also indicate that most ICT projects were undertaken for the right reasons and produced significant benefits in the organization to a very high extent. Scholars and researchers will use this study as a reference and guide for future studies.

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CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Businesses today face a stark reality of competition and are required to anticipate, respond and react to the growing demands of the marketplace in order to remain relevant. In the fiercely competitive environment, effective business strategy centers on aggressive and efficient use of Information Communication Technology (ICT). Both governments and organizations are investing heavily and relying highly on ICT to improve productivity through streamlining of business process in order to enhance efficiency and effectiveness. Many researchers have evaluated benefits of investing in ICT Projects (Cooke and Peterson, 1998; Davenport et al., 2002; Deloitte, 1998; Donavan, 1998; Ittner and Lacker, 2003, Yang and Seddon, 2004), and all agree that information systems are designed to help manage organizational resources in an integrated manner. The level of integration that is promoted across functions in an enterprise closely relates to the primary benefits that are expected as a result of their implementation.

The issue of ICT failure can be analyzed by assuming that learning from IS failures will provide us with important lessons for formulating successful strategies for the planning, development, implementation and management of information systems. While discussing dimensions of ICT failure, Beynon-Davies (2002) considers both the horizontal and vertical dimensions of the informatics model. The horizontal dimension is expressed in terms of the difference between development failure and use failure. The vertical dimension is expressed in terms of failure at the levels of ICT systems, IS projects, or organization, or at the level of the external environment. The Six types of IS failure are identified as follows: Technical failure, Project failure, Organizational failure, Environmental failure, Developmental failure; and Use failure

Beynon-Davies supports the argument with and several case studies and quotes other models for IS failure put forward by Lyytinen and Hirschheim (1987). ICT success or failure in developing countries can be categorized into three types depending on the degree of success (Heeks, 2002). First, is the total failure of an initiative never implemented or in which a new system was implemented but immediately abandoned. Second by it partial failure of an initiative, in which major goals are unattained or in which there are significant undesirable outcomes. Associated

with partial failure is the sustainability failure where an initiative first succeeds but is then abandoned after a year or so. The last is success of an initiative where most stakeholders attain their major goals and do not experience undesirable outcomes.

Several recent studies related to information communication technology (ICT) implementation frameworks have identified key ICT implementation drivers and barriers which are useful in providing a strategic view of its success in the construction industry (CI). These studies explored barriers to ICT use and adoption at the CI level. Common highlighted barriers include low ICT literacy and investment levels (Tucker *et al.*, 1999; Love *et al.*, 2001).

One recent study of 134 architectural, engineering and construction professionals identified IT implementation barriers and coping strategies at the industry, organization, and project level (Stewart *et al.*, 2004). Review of the literature however, reveals that few empirical construction studies explain ICT implementation constraints from an innovation diffusion perspective at the organization, workgroup and individual level (Peansupap and Walker, 2005). One recently completed study (Peansupap, 2004) differs from previous IT innovation research in two important ways. First, by organization-wide ICT diffusion such as groupware or intranet applications is assumed to differ from stand-alone ICT innovation such as CAD systems or non-integrated project planning and scheduling. This is because organization-wide ICT innovation requires a commitment from a greater number of users than does IT innovation focused upon individual stand-alone ICT applications. Second, the research reported upon here focuses on micro level ICT innovation diffusion within an organization. This study identifies ICT implementation constraints from the diffusion perspective in order to improve understanding of the importance of ICT implementation.

1.2 Telkom Kenya Ltd

Telkom Kenya Ltd is the sole provider of landline phone services in Kenya. It was previously a part of the Kenya Posts and Telecommunications Corporation (KPTC) which was the sole provider of both postal and telecommunication services. In 1999 KPTC was split into the Communication Commission of Kenya (CCK), the Postal Corporation of Kenya (POSTA) and Telkom Kenya Ltd.

The company operates and maintains the infrastructure over which Kenya's various internet service providers operate. As of 2004, most internet service is provided via dial-up service. Jambonet, an important Kenyan ISP, is a subsidiary of Telkom Kenya Ltd. France Telecom now holds 51% of Telkom Kenya Ltd's shares

1.3 Statement of the Problem

Business environments these days are characterized by complexity, and acceleration of everything from communication to production methods. ICT has been one of the major drivers of this complexity and acceleration. However, research continually shows that companies have difficulty in the implementation of ICT projects. From observation and previous studies, it is noted that factors such as top management support, project teamwork and composition, project management, effective communication, business case, change management program and culture, business plan and vision, weak external consultancy, post implementation support, inappropriate skills, unclear goals and objectives, scope management during the project, unrealistic time or resource estimates, all influence the implementation of ICT projects (Cushing, 2002).

Most of the stakeholders, consultants and project managers have made up their own personal opinion and conclusion about the ultimate causes of failure of ICT Projects. However, success or failure of a project cannot be determined at one single point in time, but over the full-life of the solution delivered by the project. According to Whittaker, (1999), most ICT projects fail due to lack of structural issues such as poor project planning, weak business cases and a lack of top management support. The bull survey, (1998), concluded that major causes of project failure during the project life cycle are a breakdown in communication (57%), lack of planning (39%) and poor quality control (35%). Researchers have discussed expected benefits of ICT adoption at organization and project levels. Some of the discussed benefits are: improved operational efficiency of an organization, improved quality and reduction in project time (Dehlin and Olofsson, 2008; Ruddock, 2006; Gunasekaran *et al.*, 2001; Barney, 1991) increased profit levels (Gunasekaran *et al.*, 2001), and sustainable competitive advantage (Henderson and Venkatraman, 1999; Powell and Dent-Micallef, 1997).

According to the Peansupap, (2004) lack of proper requirements analysis, lack of user involvement, lack of resources, lack of planning, lack of IT management, technology illiteracy,

lack of executive support and unrealistic expectations are among the major causes of ICT project failure. Based on The OASIG study, 1995, Lack of attention to the human and organizational aspect of IT, poor project management and poor articulation of user requirements as key factors responsible for ICT project failure. This research therefore sought to study how the selected factors influences the successes or failures of ICT projects in the Telkom Kenya Ltd as no such kind of study have been done before at Telkom Kenya Ltd. Despite all the mentioned benefit related to ICT project according to researcher knowledge no study have been done to investigate factors affecting the successful implementation of ICT projects at Telkom Kenya Ltd. Thus this study will fill this research gap.

1.4. Objectives of the Study

1.4.1 General Objective

The overall objective of the study was to investigate factors affecting implementation of ICT projects in Telkom Kenya Ltd.

1.4.2 Specific Objectives

The objectives of the study are:

i. To assess the extent the technical team influence successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County.
ii. To investigate the effect of project planning on successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County.
iii. To study the influence of management support on successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County.
iv. To find out the impact of Information Technology infrastructure on successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County.

1.5 Research questions

The research questions of study are.

i. To what extent does the technical team influence successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County?

ii. What are the effects of project planning on successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County?

iii. How does management support influence successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County?

iv. What are the impacts of infrastructure on successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County?

1.6 Significance of the study

The results of the study will be important to the following potential users in the following ways; The top management of public sector organizations will find this study an invaluable source of information in understanding the importance of their role in decision making, resource allocation and motivation, and their associated impacts in relation to ICT projects implementation in their organizations. The ICT managers, project managers and all other stakeholders who may be interested in improving ICT project delivery in the public sector or their organizations, and to understand the importance of a clear business case for a project, constitution of the right team and the of use of proper project management skills and tools in managing a project. Scholars and researchers may use this study as a reference and guide for future related studies

1.7 Limitation of the study

The researcher may encounter un-cooperative respondents who do not understand the significance of the research and the researcher will explain to them the importance of this study and the way it will assist their working lives in the organization. Due to the organizations rigid policies, the respondents might not be free in answering the questions posed to them for fear of victimization by the authorities. This was overcomed by assuring the staff that the study will not be used anywhere else or by somebody else except for academic purposes. The study was also be carried out for a short time.

1.8 Delimitation of the study

The study was confined to Telkom Kenya Ltd in Nairobi County and involved workers implementing various significant ICT projects and will offer an opportunity for a rich source of data. The researcher had significant knowledge of the organizations and is known to some of the staff and this made it easier to collect the relevant information.

1.9 Basic assumptions of the study

The respondents will be honest and truthful when answering the questions.

The sample will represent the whole population

1.10 Definition of significant terms

The definitions of significant terms used in the study are given below.

Challenge Refers to a difficult task that tests somebody's ability. In this study a challenge is a demanding action or policy, which prevents one from achieving his or her objectives.

Effective Communication This is a process by which meaning is assigned and conveyed in an attempt to create shared understanding, (CIO-Midmarket.com Definitions)

ICT Project ICT Project management is a sub-discipline of project management in which Information Communication Technology projects are planned, monitored and controlled by the designated persons.

Information Communication Technology Refers to computing and networking facilities (e.g. computers, fixed-line telecommunications, mobile phones and other wireless networks, broadband, specialized application devices, Internet, satellite communications and other networking technologies) that link together, enabling people in organizations and the public at large to communicate and share information (ACP).

Management Support Refers to the active participation and commitment of organizational top leadership in the management, review and evaluation of ICT projects. This includes; provision of required resources, timely decision making, establishment of a project steering committees and a formal process of project evaluation.

Objectives Refers to something aimed at or wished for.

Project Management and Leadership This refers to a group or individuals tasked with the overall responsibility for the management and delivery of a project within budget, time and scope.

Project Team and Composition Refers to teams whose members usually belongs to different groups, functions and are assigned to activities for the same project and reflects - a range of professional expertise. Usually project teams are only used for a defined period of time

Strategy Refers to a plan designed for a particular purpose. In this study the strategies refer to the policies set in place to effective project execution.

1.11 Organization of the Study

Chapter one of the study contains introduction, giving a background of the study while putting the topic of study in perspective. It gives the statement of the problem and the purpose of study. This chapter outlines the objectives, limitations, delimitations and the assumptions of the study.

Chapter two gives scholars' work on Information Communication Technology projects, Information Technology (IT) project management process, Integration of innovation diffusion theory with change management, Success factors for ICT projects and empirical review. It also outlines conceptual framework variables.

Chapter three consists of research methodology which will be used in the study. It covers the research design, target population, sample design, data collection, validity and reliability of data collection instruments, data analysis techniques, and ethical considerations. References and appendices will be at the end of the paper.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter covers other scholars work on Information Communication Technology projects , Information Technology (IT) project management process, Integration of innovation diffusion theory with change management, Success factors for ICT projects and empirical review. It also discusses conceptual framework variables

2.2 ICT projects

Organizations invest in IT for a number of reasons. For example, Wang (1994) suggested gaining competitive advantage, strategic planning, goal alignment, management support and information architecture as the reasons for undertaking IT projects. Moad (1994) suggested improving productivity, quality and competitiveness as the driving forces behind IT investments. Connors (1996) added that IT investments may be driven by the need to meet customer expectation, typically because other competitors have offered products, services or facilities which raise overall customers' level of expectations. This is similar to what McFarlan (1984) called "strategic necessities", where a firm must undertake a particular path because it has become necessary for its survival. More recently, Macrae (1996) reported on the top issue faced by IT executives in both private and public sectors: the need to align IT and organisational objectives to create a synergy between the two. Similarly, Black (1996), Rockart *et al.* (1996) suggest that firms learn from best practices in the IT field, which included business alignment (of IT and strategy) and technology infrastructure. The establishment of an appropriate IT infrastructure provides an organization with the flexibility and responsiveness to adapt to changing business environments (Byrd and Turner, 2000).

Although organizations may be motivated to undertake IT projects, proposals for IT investment must go through some form of evaluation before they commence. The evaluation of IT proposals has gained considerable attention in both academic and practitioner literature (see for example, Willcocks, 1994; Remenyi, 1995; Hogbin and Thomas, 1994). The conventional way of evaluating IT proposals is derived from the "usual" procedures a firm practises in evaluating other investments (such as purchase of machinery). Thus, in practice, the most popular

evaluation techniques are based on solely on financial considerations, using techniques such as payback period, net present value (NPV), internal rate of return (IRR), return on investment (ROI) or some form of financial savings analysis. According to MIS (1998), payback analysis is by far the most common method of evaluation, followed by NPV and IRR (which are methodologically similar).

However, the desire to express all IT costs and benefits into hard financial terms is fraught with problems (Irani *et al.*, 1998). One major feature of IT is that it often offers "intangibles" or soft benefits that are, by definition, hard to measure or quantify, and often it is these intangible benefits that are the key to many investment decisions (Lucas and Weill, 1993). Another example of the irrelevance of conventional evaluation such as ROI was IT projects associated with the "millennium bug" or Y2K compliance, where costs were incurred primarily to minimise risks rather than for any specific benefits to the company. Clearly in this scenario, no organisations could possibly justify the amount being spent on getting their information systems "Y2K-ready". Indeed, there is an agreement in the literature that evaluations solely based on accountancy-based cost benefits analysis are *not* adequate methodologies for assessing IT proposals and measuring IT investment performance (see for example Farbey *et al.*, 1993; Hares and Royle, 1994; MIS, 1998; Parsons, 1983; Remenyi, 1995).

There are numerous impediments to IT implementation and usage, ranging from minor difficulties faced by small firms attempting to computerise their operations to large organisations attempting to alter their competitive position with their IT investments. Generally, the larger (or more complicated) the project, the more risky and more difficult it is to implement. King and Grover (1991) and Liang and Tan (1994) list a number of organisational inhibitors and facilitators that may influence the implementation and usage of IT. Bryan (1998) suggests the following as the potential problem areas in implementing IT projectsuser training, underestimating IT skills and organisation resources required; poor project management; lack of understanding of new technology; slow senior management support; and insufficient software evaluation.

Tomes (1996), Melymuka (1998) and Lederer and Mendelow (1988) also separately mentioned these impediments. Earl and Feeny (2000) suggest that the only the "believer CEO" is fit to lead

companies in the information age. A number of studies over the last few years by the Standish group have shown that 31.1 per cent of IT projects are cancelled before completion and more than half of the IT projects studied had cost overrun of about 200 per cent (Kapur, 1997), with less than 16 per cent of the projects coming in on time and on budget (Rosemary, 1994), costing businesses upwards of $145 billion a year (Thorp, 1999). Danks (1997) suggests that IT projects cannot succeed without clear decision making, accountability and clear evaluation methodologies. Another area where there has been much criticisms is on the seemingly uncoordinated approach to IT investments. Goldsmith (1991) argues that successful IT strategy must be developed at the same time as the business strategy and that IT investments should be made to support the overall business strategy (Black, 1996; Labovitz and Rosansky, 1997; Macrae, 1996).

2.3 Information Technology Project Management Process

Computer based IT projects are usually developed over the phases such as initiation, planning, design, implementation and termination. Two or more phases are sometimes merged to benefit the project. For example, in developing a computer system it is often beneficial to merge design and implementation phases in a series of iterations (Bailey, 1998) as the final product evolves. This is referred to as "iterative evolutionary method" for developing computer systems. The iterative evolutionary method enables the system developers and their customers to communicate effectively with each other to evolve the system towards some defined objective. This method is useful from IT projects' implementation point of view and due to the following characteristics: It is difficult to visualize from project specification or design how the IT system will work or will impact on the organization.; It may be necessary to change the way people do things, or even their views of what they really need, with the introduction of IT systems; It is more likely that IT projects fail because of poor communications between technical experts and customers rather than the results of technical problems.

For successful implementation of projects three basic requirements should be met: a clear business objective, understanding of the nature of change and understanding of the project risk. Bailey (1998) studied in depth the type of change characteristics (tangible, conceptual and personal) that could be expected once a project has been implemented. Tangible characteristics

are associated with the production of some physical thing that has a practical purpose. Conceptual characteristics are associated with the production of an object or effect that creates an emotional response or intellectual idea. Whereas, personal characteristics are associated with the change in people's attitudes, the way in which they behave or the things they do.

Bailey (1998) also attempted to link planning approaches to change characteristics. He observed three approaches to planning for project management and they are linear, exploratory and personal. Linear planning is associated with the planning and management of a project through the identification of a detailed set of related tasks and deliverables. Exploratory planning is associated with the use of an iterative approach to evolve a product toward a defined end goal. Personal planning is associated with the setting of targets and time scales for managing organizational and personal change.

It is necessary to characterize a project according to the change characteristics listed above. Linear, exploratory and personal planning styles are appropriate respectively for tangible changes, conceptual changes, and personal changes. Tangible parts of a project will contain detailed task plans while conceptual parts will use iterative development in small increments. Personal plans will be "outline in nature" with a strong emphasis on personal communication.

Skelton and Thamhain (1993) explained the basis of concurrent engineering approaches, simultaneous involvement of several functions with joint responsibilities for the development, as a time-based management innovation directed for shortening the product or service delivery time. Prasaei and Sullivan (1993) stated two basic approaches for implementing concurrent engineering, team-based and computer-based approaches. Team-based approach, the application of concurrent engineering to product design teams, improves the development of products and processes as a result of team approach and also facilitates technology transfer because relevant parties are involved in the development process. The team-based approach has been enhanced by the computer-based approach. Application of computers enables design justification or optimization over a product life cycle. However, it is necessary to acquire, represent, integrate and coordinate the requisite concurrent engineering knowledge and to use computer aided designs.

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Basic steps in concurrent design processes are quite similar (Cleland, 1991) even in different industries. These steps usually progress through four stages in the life cycle concept development, engineering prototypes, pilot runs and production units. These stages as well as team-based and computer-based approaches are quite visible in IT projects.

2.4 Integration of Innovation diffusion Theory with Change Management

After an organization decides to adopt technological innovation, the next process is to encourage its adoption at an individual level throughout the organization. Diffusion has been defined as the process in which technological innovation and managerial innovation have been introduced into work processes and adopted by a specific group or across the whole organization (Bresnen and Marshall, 2001). Therefore innovation diffusion theory can be applied to explain the nature of IT adoption (Mitropoulos and Tatum, 2000) and implementation (Fichman, 1992). The number of adopters increases as the technological innovation becomes more fully diffused. Understanding technological diffusion is required to ensure successful technological innovation (Green and Hevner, 2000) because the rate of effective adoption growth can be used as a proxy measure to reflect technology introduction success. The diffusion process is complex and should also be understood so that technological limitations and constraints on adopters in the organization are well recognized (Senge *et al.*, 1999). Change management and innovation diffusion affects organizational implementation of innovation initiatives. Static factors fundamentally affect initial IT diffusion whereas dynamic factors sustain IT diffusion changes. Without the dynamic factors, diffusion could not be maintained. We examined the relevant literature to better understand the two elements of dynamic and static influence.

The term "ICT diffusion" is used to define information and communication technology that has been adopted and transferred by potential users within an organization at the implementation stage. Effective ICT diffusion success could be perceived in terms of factors that influence technology adoption and the way in which successful adoption of technology by potential users within an organization could be maintained. Rogers' (1995) innovation diffusion model describes its elements as comprising: technological characteristics; communication channels; social systems; and the diffusion rate. The innovation diffusion rate depends upon the first three factors. However, IT innovation diffusion within an organization also requires a change management

process that encourages people to adopt and use it as well as motivating people, providing appropriate training and technical support, supervisor support and open discussion to solve problems and resolve issues (Senge *et al.*, 1999).

As the national Internet infrastructure expands and ICT operating costs decrease (e.g. Internet service cost, hardware, and software costs), the numbers of ICT users in construction firms may increase over the coming years. Research outcomes reported upon in this paper could help development of a road map to be used by construction organizations to better diffuse ICT. For example, company directors from 20 Australian small-medium construction companies revealed several problematic ICT implementation issues. These include: lack of an IT infrastructure; lack of IT staff; investment cost; lack of ICT business requirements; unclear benefits of ICT use; and behavioral barriers (Love *et al.*, 2001).

Therefore, these issues should be studied in more detail through identifying drivers and inhibitors of ICT innovation to fully understand how ICT technology is transferred into organizations. This is particularly relevant to the successful expansion and/or deployment of an inter-intranet infrastructure.

Results from the Peansupap *et al.* (2003) ICT diffusion survey indicate that users had very supportive personal characteristics and a high level of understanding of using ICT applications. Users from that study's three groups felt that their organizations have high ICT diffusion influence through having: an open-discussion environment; support from colleagues; and support from supervisors.

2.5 Technical team

Project Teamwork and composition is important too throughout the project life cycle. The project team should consist of best people in the organization (Buckhout et al., 1999; Bingi et al., 1999; Rosario, 2000; Wee, 2000). Building a cross-functional team is also critical. Teams should have a mix of consultants and internal staff, so that internal staff can develop necessary technical skills (Sumner, 1999). Both business and technical knowledge are essential for business (Bingi et al., 1999; Sumner, 1999).

The importance of information and communications technologies (ICTs) as powerful tools for socio-economic development is now widely acknowledged not only among large corporations but small business enterprises as well. However, for ICT to be effectively deployed as engines of economic development existing IT skills gap both in developed and developing countries must be addressed. The Digital Opportunity Task Force (DOT FORCE, 2002) emphasizes human resources development through systematic training and education as critical if countries have to reap digital dividends. Additionally, pervasive use of ICT in the economy depends on well-trained human resources for developing relevant applications, supporting and maintaining systems. Moreover, investment in human capital, research and development is becoming increasingly recognized as a critical factor in preparing citizens to participate in the digital age. The International Labour Organization (ILO, 2001) states that countries with the right mix of skills stand a better chance of becoming important locations in global markets. However, for maximum gains to emerge, the development of essential ICT skills is necessary because without such skills, the technologies can neither be maintained nor adapted to local use. The promotion of education and literacy in general and digital literacy in particular, remains a major challenge facing most countries especially those in the developing world. ILO (2001) observes that adoption of ICT in business environments creates two types of skill needs. The first is related to the variety of foundation skills such as the ability to communicate, analyze and solve problems. The other skills relate to technical component which extends beyond the ICT sector to the economy as a whole.

The project should be the top and only priority and the workload should be manageable. As far as possible, teams should be collocated together at an assigned location to facilitate working together (Wee, 2000). The team should be given compensation and incentives for successfully completing the project on time and within the assigned budget (Wee, 2000). The team should be familiar with the business requirements and products so that they know what needs to be done to support business processes (Rosario, 2000).

The sharing of information within the company, particularly between project partners and between partnering companies is vital and requires partnership trust (Stefanou, 1999).

Partnership should be managed with regular scheduled meetings. Incentives and risk sharing agreements will aid in working together to achieve similar goals (Wee, 2000).

2.6 Project Planning

There should be a justification for the ICT project investment based on a problem and the change tied directly to the direction of the company (Falkowski et al 1998). Project mission should be related to business needs and should be clearly stated (Roberts and Barrar, 1992). Goals and benefits should be identified and tracked (Holland et al. 1999) and the business plan would make work easier and impact on work (Rosario, 2000)

Having well defined functional and technical requirements for a project is key. In many cases, there is a big push to get a project started and the project requirements are only superficially defined. Cutting time in the requirements definition phase of a project is very likely to come back and would bite you later on a major project. In most cases, it always pays big dividends to have a good handle on the functional and technical requirements of the project before moving ahead. The focus on the importance of requirements definition is another benefit of using an effective project management methodology (Coley consulting, 1994).

According to Coley Consulting, (1994), any ICT initiative that doesn't produce significant business value for the enterprise is probably being undertaken for the wrong reasons. In most cases, producing major business value means making the enterprise more competitive and more profiTable. In today's environment, this usually means increasing sales, reducing operating costs, improving product and service quality, improving access to critical information, creating direct links with business partners or improving operating flexibility. In many cases, major ICT initiatives are driven by technology issues instead of business benefits or requirements.

In some cases the goal of an ICT project may be only partially clear due to a poor requirement gathering in the definition stage of a project (Glaser, 2004). Defining clear requirements for a project can take time and lots of communication, but sometimes goals and objectives might be unclear because project sponsors lack the experience to describe what they really require (Fichter, 2003).

In the Project Perfect White Paper Collection, many participants in the Jensen Group Study said goals were unclear in their projects simply because there were too many of them (The Jensen Group, 2000). Involvement of non-technical business staff to determine actual business needs is essential, especially in the following areas; evaluation of business needs, process modeling, requirements analysis (use cases, business rules, data requirements, and reports), specifications development, prototype planning and feasibility studies, logical data design, implementation planning and process reengineering.

Additionally, a clear business plan and vision to steer the direction of the project is needed throughout the ERP life cycle (Buckhout et al, 1999). A business plan that outlines proposed strategic and tangible benefits, resources, costs, risks and timeline is critical (Wee, 2000). This will help keep focus on business benefits.

There should be a clear business model of how the organization should operate behind the implementation effort (Holland et al. 1999).There should be a justification for the investment based on a problem and the change tied directly to the direction of the company (Falkowski et al 1998). Project mission should be related to business needs and should be clearly stated (Roberts and Barrar, 1992). Goals and benefits should be identified and tracked (Holland et al. 1999) while business plan would make work easier, (Rosario 2000).

2.7 Management Support

There is no doubt that executives play a crucial role in the process of implementing ICT investments (Kohli and Devaraj, 2004). At the same time, ICT executives' perceptions were also shown to be an excellent proxy measure for successful ICT implementation and were also found to be highly correlated with objective measures (Tallon *et al.*, 2001). Of course, a certain danger exists that ICT managers will exaggerate the role of ICT or that they will not grasp the full complexity of ICT's effects. In a study by Venkatraman and Ramanujam (1987), senior executives were asked to rate their firm's performance relative to that of their biggest competitors using a number of different performance criteria, including sales growth, net income growth and ROI. The resulting high degree of correlation between the perceptual and objective performance measures led the authors to conclude that "perceptual data from senior managers can be

employed as accepTable operationalization of business economic performance" (Venkatraman and Ramanujam, 1987). Executives' perceptions of ICT's payoffs have also been correlated with more traditional economic performance measures such as revenues, net profits and productivity (Tallon *et al.*, 1998). Of course, besides quantitative and financial effects ICT investments are also particularly important for the quality of services, customer satisfaction and market positioning, which are all relatively difficult to evaluate quantitatively.

Although perceptual measures have been widely accepted in organisational research (Lawrence and Lorsch, 1986), they have only recently begun to appear in the ICT literature. For example, DeLone and McLean (1992) argued that executives are ideally positioned to act as key informants in a qualitative assessment of ICT's impacts on their corporations. There is a twofold basis for this argument. First, as direct consumers of ICT executives can rely on personal experience when forming an overall perception of the impacts of ICT (Davis and Olson, 1985; Rockart and Flannery, 1983). Second, as business executives become more involved in ICT investment decisions they are also increasingly exposed to the views of their peers and subordinates (Natek and Lesjak, 2005). several studies also demonstrate that executives' perceptions are the key to understanding how ICT impacts on a firm's performance (Boynton *et al.*, 1994). Within this context, Grover *et al.* (1998) used perceptual data from executives to shed light on the link between ICT diffusion, process change and productivity gains for a series of technologies. On the other hand Neely *et al.* in Pantazi and Georgopoulous (2006) suggest that companies should use the "performance prism" model in order to evaluate the value and impact of ICT, taking into account the views of stakeholders, employees and customers. Finally, Broadbent and Weill (1993) established a clear relationship between managerial perceptions of the role of ICT infrastructure, the perceived value of that infrastructure, and the ICT investment biases.

Managers require a road map for strategic adoption of ICT, but, its implementation which will inevitably be unsuccessful if the organization's culture is not properly aligned with, and supportive of an overall business strategy (Schneider, 2000). ICT implementation should become a business objective of the construction industry and should give equal prominence to technology, people and processes involved in construction projects. Only in such a scenario will

it be adopted by the industry as a whole. The strategic and cultural factors are qualitative and have been studied separately through qualitative analysis.

ICT adoption by project managers and team members is defined by the factors affecting their perceptions as well as the factors affecting decision making at the organization level. Similarly, ICT adoption by an individual organization is also defined by the factors affecting ICT adoption at the industry level, since it represents its national construction industry. Thus, causal relationships between all the identified factors need to be studied. While researchers analyzing the benefits from ICT use and investment have tended to concentrate their assessment at the firm/organization level, studies at the industry level have been scarce (Ruddock, 2006)

2.8 IT Infrastructure

Recently, Williams and Clark (2007) reported that most companies are investing heavily and are fundamentally dependent on their ICT infrastructure. However, these companies have struggled to find the best ways to successfully introduce ICT into their domain (Brady *et al.*, 2008). Consequently, it is often the case that these ICT-related investments do not deliver value or business objectives (Fitzgerald, 1998), especially when a company adopts ICT without clear understanding of the scope and implications of that adoption (Pires and Aisbett, 2003). This may often be because the new technology introduces new problems by replacing the old problems with the expectations that there will be some benefits out of it. ICT failure in organizations is not a new problem; it is a long-standing problem reflecting incapacity to deliver (Fincham, 2002). Gibson (2003) reports the reasons for underperformance in ICT being related to technology, i.e. expanding the project, unable to cope with the complexity of integrating different systems. Although companies face other challenges such as inability to develop new workflow processes, or adapt the structure of organization or change from old to new cultural practices, this research realizes that the potential of these SMEs could be maximized if there is some means to achieve a successful and sustainable adoption of ICT in their businesses. The importance of the need for SMEs to develop robust, responsive and more sustainable means to adopt ICT to support their business planning and control has been accepted (Irani, 2002; IAI, 2000) by many companies. As a consequence, ICT is not regarded as "just another option" but as a critical resource (Kohli and Devaraj, 2004) that determines SME growth and survival.

Additionally, a clear business plan and vision to steer the direction of the project is needed throughout the ERP life cycle (Buckhout et al, 1999). A business plan that outlines proposed strategic and tangible benefits, resources, costs, risks and timeline is critical (Wee 2000). This will help keep focus on business benefits.

There should be a clear business model of how the organization should operate behind the implementation effort (Holland et al. 1999).There should be a justification for the investment based on a problem and the change tied directly to the direction of the company (Falkowski et al 1998). Project mission should be related to business needs and should be clearly stated (Roberts and Barrar, 1992). Goals and benefits should be identified and tracked (Holland et al. 1999) while business plan would make work easier, (Rosario, 2000).

2.9 Empirical Review

ICT diffusion success could be perceived in terms of factors that influence technology adoption and the way in which successful adoption of technology by potential users could be sustained Peansupap and Walker (2005). They classify the factors affecting ICT diffusion in an organization as static and dynamic, where static factors, e.g. technological characteristics and communication channels, fundamentally affect initial ICT diffusion and dynamic factors, e.g. motivation, training and technical support, sustain ICT diffusion changes. People, who are a part of different project team organizations, manage projects and the project team organizations are a part of the construction industry. Thus, factors are required to be studied at the three levels of industry, organization and people and the following section summarizes the literature study for factors at these three levels.

In a survey conducted to assess the status of ICT adoption in the Australian construction industry, it was found that the annual turnover of an organization has an effect on the uptake of ICT and ICT training performance for an organization (Kajewski, Weippert, Remmers, and McFallan, 2004). Ruddock (2006) also reports that smaller firms tend to be less ICT intensive than large firms. Partly because large firms have more scope for improving communication flows within the organization and partly because large firms also invest more in ICT than small firms as ICT investment is risky and uncertain, which may be more difficult for small firms to bear.

This factor highlights the relevance of the research study discussed in this paper as it studies ICT adoption by SMEs.

Liberatore *et al.* (2001) have identified the improved capabilities of project management (PM) software as enablers of effective ICT adoption and an area for future research. Thus, information technology (IT) tools or Project Management software adopted for Project Management processes have an effect on ICT adoption for Business Project Management.

Using the internet as the communication platform facilitates the speedy transmission of information and also reduces the cost of communication with overseas construction sites as compared with traditional information handling methods (Tam, 1999). Thus, increased geographical separation between project team members is an important factor driving ICT adoption for Business Project Management.

However, it has been found difficult to evaluate these benefits (Ruddock, 2006) and many of the traditionally used appraisal approaches have been found inadequate. As a result, the investment in ICT is too often assumed to be negative since the benefits are not properly evaluated, included and weighted against the costs and risks the investment is expected to generate. It does not only have an influence on individual projects but also, in the long run, on the motivation to innovate and introduce new ICT tools in the construction industry (Dehlin and Olofsson, 2008). This aspect is a barrier for effective adoption of ICT. Some of the other identified barriers are suggested to be deficient understanding and lack of knowledge about the possibilities of ICT, unsuccessful implementation into project organizations and limitations of software functionality (Dehlin and Olofsson, 2008). Thus, in the absence of an accepted evaluation method, the benefits and barriers of effective ICT adoption are primarily perception-based and these perceived benefits and barriers determine the extent of ICT adoption by the construction industry.

2.10 Knowledge Gap

Despite numerous researches done to determine key factors in ICT project implementation, literature indicates that there are varying reasons and variables as responsible for the success of ICT project implementation. According to Cushing, (2002), lack of clear project goals and objectives changing during the project are considered the key factors in ICT project failure, on

the other hand, The Standish Group International, (1999) reported that large projects are more likely to fail than small projects due to their complexity.

Tilmann and Weinberger, (2004) identified project management process and organizational culture as the key factors in determining the success of ICT projects. On the contrary, Jenster and Hussy, (2005) concluded that lack of the management support and user involvement are the two critical factors in ICT project implementation.

Though there is a general agreement on factors affecting ICT project implementations, there is no consensus on the extent to which these factors affect the success or failure of ICT projects in organizations. Furthermore, much of the available literature is based on the developed countries, thus there is need for this type research in a developing country like Kenya.

2.11 Conceptual Frame Work

The Independent variables in this research are the technical team, availability of resources, management support and IT infrastructure and dependent variable is Successful Implementation of ICT Projects

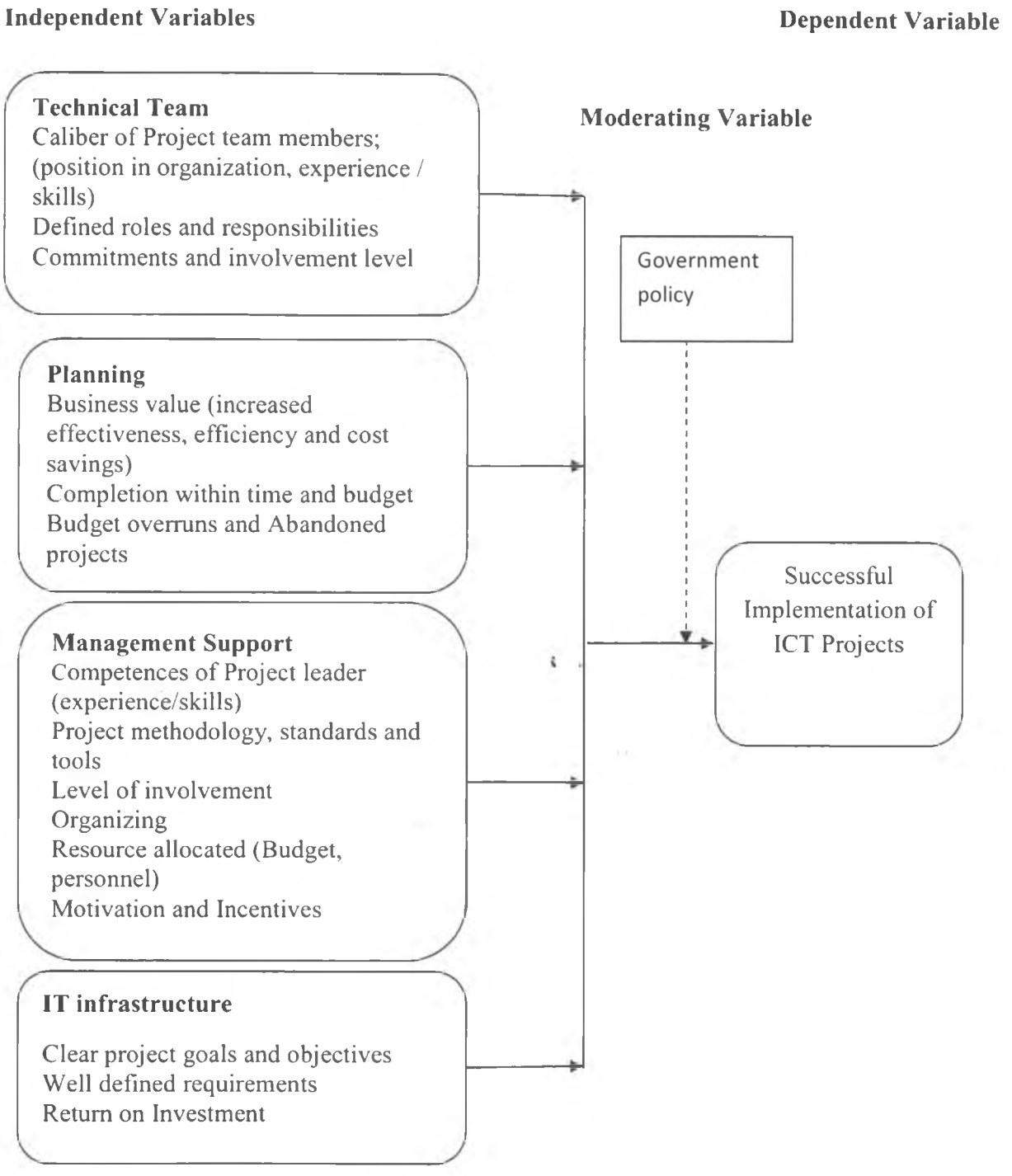

Figure 1 Conceptual Framework

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology used in the study. It covers the research design, target population, sample design, data collection, validity and reliability of data collection instruments, data analysis techniques, and ethical considerations

3.2 Research Design

A descriptive study design was used. A case study was used to obtain an in-depth investigation of an individual, institution or phenomenon (Mugenda and Mugenda, 2003). The primary purpose of case study was to determine the factors that influence the implementation of ICT projects at Telkom Kenya Ltd. A descriptive study design is deemed the best design to fulfill the objectives of the study. Case study research design has the advantage of generating new understandings, explanations and is cheaper than survey and takes less time; it is for this that the study adopted a case study research design. A research design is the general plan of how one goes about answering the research question (Saunders, Lewis and Thornhill, 2000). A descriptive survey research design was used to obtain data. This design is considered appropriate for the type of objective of this study and the implied comparative analysis to determine the factors influencing implementation of ICT projects in Kenya. This research will be both explanatory and descriptive. It is explanatory in the sense that the problem is examined with an aim of establishing the casual relationships between variables. On the other hand, it qualifies as descriptive since it sought to portray the phenomenon through describing events, situations and processes.

3.3 Target Population

According to Mugenda and Mugenda, (2003), a population can be defined as an entire set of relevant units of analysis or data. The target population of this study was 300 staff from the Telkom Kenya Ltd headquarters.

The target population was drawn from a group of individuals who are actively involved in the implementation of three main ICT projects; namely, IT and Network, Customer Care, business Market, Marketing and Finance department

Table 3.1 Target Population

Category	Population size
Top level Managers	10
IT and Network	75
Customer Care	80
business Market	55
Marketing	50
Finance Department	30
Total	**300**

3.4 Sampling Procedure

Sampling technique provides a range of methods which enables reduction of data to be collected, by focusing on data from a sub-group rather than all cases of elements. The sampling design used is non-probabilistic since it allows a selection of individuals who have been involved in implementation of ICT projects and that are best suited to answer the research question. This technique is also suitable when working with smaller samples since it caters for cases that are particularly informative.

The researcher used stratified random sampling technique to select a sample size of 120 employees from the population 300 employees of Telkom Kenya Ltd who are currently working at Telkom Kenya Ltd headquarters. Mugenda and Mugenda, (2003), states that a sample size, of 30% is considered representative for a population of less than 500. So if the population is less or equal to 30% it is appropriate to carry out census study. The sample size is justified by 40% since it will minimize the duplicity and redundancy of data obtained since the size is large enough to ensure collection of comprehensive data.

Table 3.2. Sample Population

Category	Population size	Sample size (40% of Population)
Top level Managers	10	4
IT and Network	75	30
Customer Care	80	32
Business Market	55	22
Marketing	50	20
Finance Department	30	12
Total	**300**	**120**

3.5 Data Collection Methods

The primary data was obtained from the respondents through a structured questionnaire comprising of closed and open-ended questions.

The questionnaire was divided into 3 parts where Part A will cover general demographic data of the respondents, part B consisted of questions focusing on factors influencing the implementation of ICT projects, while Part C will contain the questionnaire used in Likert 1-5 scale, with 1 being 'to no extent at all', 2 being 'to a small extent' 3 being 'to some extent', 4 being 'to a high extent' and 5 being 'to a very high extent'.

3.6 Validity of Instruments

Joppe (2000) provides the following explanation of what validity is in quantitative research where Validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are. In other words, does the research instrument allow you to hit "the bull's eye" of your research object? Researchers generally determine validity by asking a series of questions, and will often look for the answers in the research of others.

Wainer and Braun (1998) describe the validity in quantitative research as "construct validity". The construct is the initial concept, notion, question or hypothesis that determines which data is to be gathered and how it is to be gathered. They also assert that quantitative researchers actively cause or affect the interplay between construct and data in order to validate their investigation, usually by the application of a test or other process. In this sense, the involvement of the

researchers in the research process would greatly reduce the validity of a test. Data quality will be incorporated in the entire study process especially at the data collection point to include completeness of questionnaires, legibility of records and validity of responses. At the data processing point, quality control included; data cleaning, validation and confidentiality. There are three types of validity which will be addressed and stated; *Face validity* with pre-testing of survey instruments was a good way used to increase the likelihood of face validity. *Content validity* the use of expert opinions, literature searches, and pretest open-ended questions helped to establish content validity.

3.7 Reliability of Instruments

Joppe (2000) defines reliability as the extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable

The most popular methods which was used in estimating reliability is the use of measures of internal consistency. The questionnaire was pre-tested through a pilot test with individuals from the same organizations previously involved in ICT project but not part of the sample population in the study to avoid double inclusion of pre-test participants in the main study. Their feedback helped in making vital adjustments to enhance reliability and validity of the study findings. To ascertain the reliability of the data collection instrument was examined by professionals who include researchers, supervisor and ICT experts and modifications done based on the responses obtained.

3.8 Data Analysis

Data was collected, examined and checked for completeness and clarity. Descriptive statistics will be used to analyze the data. Data was analyzed using Tables and percentages, means and standard deviations. Statistical Package on Social Sciences version 17 will be used for statistical analysis.

3.9 Ethical Consideration

Ethics are norms governing human conducts which have a significant impact on human welfare. It involves making a judgment about right and wrong behavior. Bryman (2007) states that it is the responsibility of the researcher to carefully assess the possibility of harm to research participants, and the extent that it is possible; the possibility of harm should be minimized. The researcher recognized that the issue under study was sensitive because it involved the core business of the organization. Therefore, there will be need to protect the identity of the respondents as much as possible. This means that the questionnaires did not require the respondent's names or details that may reveal their identity.

The researcher was also obtain a letter from University of Nairobi allowing to undertake the study and an introductory letter explaining the purpose of the study and Confidentiality will be upheld for all respondents.

3.10 Operational Definition of Variables

The operational definition of variables influencing implementation of ICT project variables are given in Table 3.3

Table 3.3 Operational definition of variables

Objectives	Type of Variable	Indicators	Measurement scale	Tools of Analysis	Type of Statistics
	Independent Variables				
To asses extend the technical team influence successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County.	Technical Team	Caliber of Project team members; (position in organization, experience / skills) Defined roles and responsibilities Commitments and involvement level	Ordinal	Mean, Percentage, mode,	Descriptive
To investigate the effect of project planning on successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County.	Planning	Business value (increased effectiveness, efficiency and cost savings) Completion of project within time and budget Budget overruns and Abandoned projects	Ratio	Mean, Percentage, , mode,	Descriptive
To study the influence of management support on	Project management	Competences of Project leader (experience/sk	Ratio	Mean, Percentage, mode,	Descriptive

successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County.		ills) Project methodology, standards and tools Level of involvement Organizing Resource allocated (Budget, personnel) Motivation and Incentives			
To find out the impact of Information Technology infrastructure on successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County.	ICT infrastructure	Clear project goals and objectives Well defined requirements Return on Investment	Ratio	Mean, Percentage, mode	Descriptive
	Dependent variable				
	Successful Implementation of ICT Projects	Financial considerations Evaluation of ICT project Application usage Support from supervisors	Ratio	Mean, Percentage, mode	Descriptive

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents data analysis, presentation and interpretation. The research was conducted using a sample of 120 respondents from Telkom Kenya Ltd. The study targeted employees from Top level Managers, IT and Network, Customer Care, Business Market, Marketing and Finance departments. However, only 100 questionnaires were returned filled thus making a response rate of 83.3%, which is an adequate response rate for statistical reporting The study used Likert scale in collecting and analyzing the data whereby a scale of 5 points were used in computing the means and standard deviations. These were then presented in Tables, and with explanations being given in prose. Mugenda and Mugenda (2003) stated that a response rate of 50% and above is a good response rate.

4.2 Demographic Characteristics

The study sought to establish the information on the respondents employed in the study with regards to the gender, age, duration of service, and the level of education. These bio data points at the respondents' appropriateness in answering the questions and also looks at the employment demographics in Telkom Kenya Ltd at Nairobi.

Table 4.1: Distribution of Gender

The Gender of the respondents in the Table 4.1

Gender	Frequency	Percentage
Male	56	**56**
Female	44	**44**
Total	**100**	**100**

The respondents were asked to show their gender, this was expected to guide the researcher on the conclusions regarding the degree of congruence of responses with the gender characteristics on implementation of ICT projects in Telkom Kenya Ltd. The results in Table 4.1 shows that

majority 56% of the respondent were males while females were 44% implying that most of the workers at Telkom Kenya Ltd in Nairobi were males.

Table 4.2: Distribution of Age Group

Years	Frequency	Percentage
60 Yrs>	0	0
50-59	14	14
40-49	30	30
30-39	35	35
29 & Below	21	21
Total	**100**	**100.0**

The results presented in Table 4.2 show that a large proportion of 35% the respondents were aged from the ages of 30 to 39 years; this was followed by a significant percentage 30% that had also attained ages from 40 to 49 years, while 21% and 14 % are for 29 and below and 50-59 years respectively. The age composition shows that most of the respondents were of the 30 to 39 years and therefore had rich experiences, could also appreciate the importance of the study, while those below the age of 30 were not conversant enough with factors affecting implementation of ICT projects in Telkom Kenya Ltd.

Table 4.3: Level of Education of the Respondents

Level of Education	Frequency	Percentage
Certificate	5	5
Diploma	25	25
Undergraduate	55	55
Postgraduate	15	15
Total	**100**	**100.0**

From the Table 4.3, 55% of the respondents said they had undergraduate degree. 15% had postgraduate degree, 25% said that they had they were diploma holders while 5% said that they were certificate holders. These findings indicate that majority of the staff in the firm, have undergraduate degree.

The respondent where asked to show the Department they work

Table 4.4: Department Worked

Department Worked	Frequency	Percentage
Top level Managers	3	3
IT and Network	25	25
Customer Care	27	27
Business Market	20	20
Marketing	15	15
Finance department	10	10
Total	**100**	**100**

Table 4.4 shows the most respondent were in Customer Care 27 respondents while the least department was Finance department 10. IT and Network, Business Market and Marketing were 25, 20 and 15 respondents respectively. The top manager responded were 3.

Table 4.5 presents the findings on the duration of respondents work in the present capacity.

Table 4.5: Length of Service in the Current Job

Years	Frequency	Percentage
3yrs and below	20	20
3 to 5 years	60	60
5 to 7 years	15	15
Over 7 years	5	5
Total	**100**	**100**

Table 4.5, indicate that 60% of employees had been in the present company for 3-7years. 5% indicated a period of over 7 years. 15% indicated a period of 3-5 years while 60% indicated a period of less than 3 years. These findings indicated that majority of the staff at Telkom Kenya Ltd in Nairobi, have worked at their present company for a period of 5-7 years.

Table 4.6: Career in Industry

Years	Frequency	Percentage
1-3 yrs	4	4
3-5 yrs	12	12
6 -15yrs	64	64
Over 15yrs	20	20
Total	**100**	**100**

Table 4.6 presents the findings on the duration of the respondent's working in the organization. The table shows that 68.1% of respondents said that they had worked for the organization for a period of 6-15 years.18.1% of the respondents said that they had worked for a period of over 15 years. A percentage of 11.1% also said that they had worked for the organization for a period of 3-5 years and 2.8%, 1-2 had worked for between 1 and 3 yrs. These findings indicate that majority of the staff at Telkom Kenya Ltd in Nairobi have worked for a period of 6-15 years.

4.3 Type of ICT project, respondent role and level of involvement

This section presents a summary of data on the type of the ICT projects under consideration, respondent role(s) and involvement in the project. The nature of the ICT projects under consideration included ICT Network expansions and Software/Applications, with focus on ISP/ERP and SCADA implementation as shown in Table 4.7.

Table 4.7: Description of ICT Project Category Implemented by Users

Type of ICT project	Percentage of Respondents per category
Network Expansion	22
ISP/ERP	52
SCADA	18
Other Applications	8
Total	**100**

On the type of ICT project, 52.0% of the respondents were involved ISP/ERP implementation projects, 22.0% on Network expansion, 18.0% in SCADA and 8.0% were involved in other applications. This shows that over 70% of the respondents were involved in software or applications related ICT projects department.

Respondent role in the ICT project included project sponsorship, management representation, and membership in the implementation team. This section further assessed the levels and employees involved in identification, implementation and decision making in the organization and lastly the levels of employees involved in ICT projects implementation as represented in Table 4.7

Table 4.8: Roles and levels of respondents in ICT Project(s)

Roles and Levels	Description	Frequency	Percentage
Employee role in the ICT Project	Project sponsor/ Management	35	35
	User/Super representatives	22	22
	ICT Technical experts	43	43
Total		**100**	**100**
Level of employees involved in Project identification and Management	Board and Top Management	15	37
	Middle Management	13	32
	Other employees	11	27
Total		**40**	**100.0**

4.3.1 Employee role in the ICT Project

Employee's role in the ICT project was as follows. 35.0% of the respondents were either Project sponsor or Management representative, 22.5% were user representative while 42.5% were ICT technical experts. Majority of the respondents who played the technical role in most of the projects were from ICT as shown in Table 4.8.

4.3.2 Level of employees involvement in ICT Project identification and Management

On employee involvement, 37.5% of the respondent were board and Top Management representative, 32.5% were Middle Management while the rest of the employees constituted 27%. This shows that the involvement in ICT projects cut across all levels with Board and Top Management taking the lead.

4.3.3 Employees involvement in the stages of implementation in ICT Projects

The respondents were to indicate their level of involvement in Requirements analysis, Systems design, Implementation, training and usage. Table 4.9 shows the distribution per level of involvement.

Table 4.9: Stages of Employees Involvement

Stages of Employee Involvement	Percentage
Requirements scoping and analysis	3
Implementation	10
Requirements scoping and analysis	32
Systems and design	55
Totals	**100**

From Table 4.9, majority of the employees were involved in all the stages of requirements analysis, Systems design, Implementation, training and usage.

4.4 Factors Affecting Implementation of ICT Projects

The critical factors influencing ICT Project implementation together with perceptions and experience of the various organizations that were considered in the study included:- technical team, project planning, management support and Information Technology infrastructure

Respondents were asked to indicate to which extent the factors considered important in the implementation of ICT projects in their organization. Respondents were presented with a five point Likert scale to rank these dimensions. Scale rank 5 was considered 'to a very high extent', 4 'to a high extent', 3 'to some extent', 2 'to a small extent' and 1 'to no extent at all'.

Data was analysed using mean scores, standard deviations, correlation and cross tabulations. The higher scores for the mean indicate higher levels of each construct. A mean score greater than 4 (M>4) is considered to imply to a very high extent; a mean score greater than 3.5 but less than 4 is considered to imply to a high extent; those with mean scores greater than 3.0 but less

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than 3.5 imply to some extent; a mean score greater than 2 but less than 3.0 imply to a small extent; while a mean score of less than 2 is considered to imply to no extent.

Standard deviations greater than 1.5 implies that there was a significant variance in the way the factor was considered. This is interpreted to mean that there was lack of agreement / consensus on the responses while standard deviation of less than 1.5 would imply there was consensus and responses did not differ substantially between one respondent and another.

4.4.1 Technical Team

In the determination of how project technical team affects the implementation of ICT projects, the study took into account these factors; that necessary trainings and workshops were conducted for the project team to foster team work; that the project team members were experienced, knowledgeable and skilled for delivery of the project; that project team showed commitment and achieved their targets and goal in time and that the project team were all inclusive and representative of all key stakeholders.

Table 4.10: Project Team and Composition Statistics

Critical Factors	Mean	Standard Deviation
Necessary trainings / workshops were conducted for the project team to foster team work	**3.55**	**1.06**
The project team members were experienced, knowledgeable and skilled for necessary for delivery of the project	**3.70**	**.823**
Project team showed commitment and achieved their targets and goal in time	**3.98**	**0.660**
Project team all inclusive and representative of all key stakeholders	**3.75**	**.776**
Average score	**3.75**	**.830**

Table 4.10 shows that there was a high consensus (Sd=0.83) that the Project Team and Composition was considered to a high extent during the implementation of ICT projects (M = 3.75). In particular, the highest ranked critical factor was "Project Team showed commitment and achieved their targets and goals in good time" (M = 3.98) followed by "Project team was all inclusive and representative of all key stakeholders (M= 3.75)

4.4.2 Project Planning

In the process of determining how project influenced the implementation of ICT projects, the following factors were considered; that the structures were in place to ensure effective project communication within the project team and at all levels of the organization.

That the top management ensured establishment of effective communication structures to ensure flow of project information to and from all stakeholders; that goals/objectives for ICT project was communicated to all stakeholders; and that project team members understood their roles and what was expected of them. The findings of the study are tabulated in the Table 4.11.

Table 4.11: Project Planning Statistics

Critical Factors	Mean	Standard Deviation
Structures were in place to ensure effective project communication - within the project team and at all levels of the organization	**3.64**	**.843**
Top management ensured establishment of effective communication structures to ensure flow of project information to and from all stakeholders	**3.48**	**.877**
Goals/objectives for ICT project was communicated to all stakeholders	**3.67**	**0.932**
Project team members understood their roles and what was expected of them	**3.55**	**.639**
Average score	**3.63**	**.844**

The findings presented in Table 4.11 shows that Effective Communication is critical to the success of implementing ICT projects as shown by the high ratings in the sub-factors "Structures were in place to ensure effective communication", "Goals/objectives for ICT project was communicated to all stakeholders" and "Project team members understood their roles and what was expected of them". (M =3.64, 3.67 and 3.55 respectively).

Only one critical factor was rated to a moderate extent, "Top management ensured establishment of effective communication structures to ensure flow of communication:" (M = 3.48 and Sd = 0.932). Overall, there was a high level of consensus among the respondents that effective

communication influenced the success of implementation of ICT projects. There is also consistency as shown by the minimal disparity in respondents (Sd =0.844)

4.4.3 Management Support

In investigating how the management support influenced the implementation of ICT projects the study considered project team support, incentives and compensations, visible top management and availability of necessary resources as show in Table 4.12.

Table 4.12: Management Support Statistics

Critical Factors	Mean	Standard Deviation
Project team received necessary support and tools required for the project necessary to achieve their targets and goals	**3.98**	**0.891**
Incentives and compensation were offered to the project team for motivation and encourage towards achieving their goals / results.	**2.85**	**1.210**
Top management support was visible throughout the project phases	**3.70**	**0.966**
Top management ensured availability of resources (financial and human), as well as necessary facilities to ensure that the project team meet their targets	**3.93**	**.888**
Effective monitoring and evaluation process to ensure delivery of project in time and within budget	**3.35**	**1.027**
The project leader had a track record of success with major it projects	**3.58**	**.903**
Goals and targets set out were realistic and attainable	**3.90**	**.672**
Effective project management methodology and tools were used	**3.67**	**0.869**
Average score	**3.62**	**.989**

From Table 4.12 above, project team received necessary and desired support, top management ensured availability of required resources and their support was visible throughout the project phases to a high extent (M=3.98 to 3.70). However, incentive and compensation for the project team was considered to a small extent (M=2.85). Generally there was a consensus on top management support as shown by the low average standard deviation (Sd=0.989)

From the findings above, the critical factors in project management and leadership that were perceived as important to influencing the implementation of ICT projects were "project leader had track record of success with major IT projects", "Effective project management methodology tools were used", "Goals and targets set out were realistic and attainable" and "Management ensured adherence to state regulations and policies" were rated to a high extent (M = 3.58, 3.67, 3.90 to 3.83 respectively). There was moderate consensus with low average variations (Sd = 0.903, 0.869, 0.672, and 0.931 respectively).

The least critical factor considered under project management and leadership which was rated as to some extent was "Effective monitoring and evaluation process to ensure delivery of project and in time" (M=3.35). Overall, there was moderately high consensus that project management and leadership affects the success of implementation of ICT projects.

4.4.4 Information Technology Infrastructure

The variables considered in Information Technology Infrastructure were: whether ICT project was undertaken for the right reasons; ICT project produced significant business benefits and value; critical functional processes were optimized as part of the project; projects functional and technical requirements were well defined and understood by all stakeholders and the determination of the existence of clear business model and justification for the investment towards the project. The findings are presented in Table 4.13.

Table 4.13: Information Technology Infrastructure influences the success of ICT projects

Critical Factors	Mean	Standard Deviation
ICT project was undertaken for the right reasons	**4.58**	**.594**
ICT project produced significant business benefits and value	**4.33**	**.730**
Critical functional processes were optimised as part of the project	**3.95**	**.857**
Projects functional and technical requirements well defined and understood by all stakeholders	**3.70**	**.853**
Existence of a clear business model and justification for the investment towards the project.	**3.95**	**.815**
Average	**4.10**	**.769**

The Table 4.13 shows that to a very high extend, most ICT projects were undertaken for the right reasons and produced significant business benefits, respectively (M>4.58 to 4.33). There was also relatively very low variations in these responses (Sd = 0.594 to 0.730).

The rest of the variables in business case were considered to a high extent, namely: critical functional processes were optimised as part of the project; Projects functional and technical requirements well defined and there existed a clear business model and justification for the investment towards the project that was understood by all stakeholders (M=3.95 to 3.70) with low standard deviation.

4.4.5 Other factors that affected the implementation of ICT Projects

Respondents were asked to indicate any additional factors in their opinion that affected the implementation of ICT projects in their organization. Their responses were analyzed and are presented in Table 4.14.

Table 4.14: presents the findings on the duration of respondents work in the present capacity.

Factor	Frequency	Percent
Clearly defined project deliverables	**14**	**38.8**
Post implementation reviews, support and maintenance	**10**	**27.7**
Ownership of the system, premises and usage	**7**	**19.4**
Project site visits and celebration of milestones	**5**	**13.9**
Limited confidence in the workability of the technology	**2**	**5.5**
State involvement at all level	**9**	**25**

The factor that is cited highly but not included in the pre-determined factors is "Clearly defined project deliverables" followed by "Post implementation reviews, support and maintenance" at 38.8% and 27.7% respectively. Other challenges cited that affect the implementation of ICT projects were; "ownership of the system, premise and usage", and "project site visits and celebrations of milestones". Only 5.5% of the respondents perceived that "limited confidence in the workability of the technology" as a factor affecting implementation of ICT Projects.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter gives a summary of the findings gathered from the analysis of the data, discussion, conclusions and recommendations. The findings are summarized alongside the objectives of the study, discussions are made, conclusions are drawn from the study and recommendations for action and further studies are given.

5.2 Summary of Findings

A summary of findings is given in Table 5.1. From the data analysis it was established that majority of the respondents were at the position of Senior Management Level, had university graduate/post graduate degree education and had worked for between 11 to 15 years.

In terms of the involvement of the staff, majority of the respondents were involved in software or business applications related projects and those who played the technical role in most of the projects were drawn from ICT. The involvement of staff cut across all levels of the organization with the board and top Management taking the lead. Majority of the respondents were involved in all the stages of requirements analysis, Systems design, Implementation, training and usage.

Table 5.1: Summary of findings

Objectives	Main findings
To assess the extent technical team influence successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County.	Project team work composition was found to be very important throughout the project life cycle. Employees were in consensus on the importance of the project team and composition Project team were found to be committed and achieved their targets and goals in good time to a high extent Most of the project teams were found to be all inclusive and representative of all key stakeholders

To investigate the effect of project planning on successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County.	The study found out that top management ensured establishment of effective communication structures to ensure flow of communication Planning enabled enable feedback reach those it is intended and open communication flows in order to succeed in implementing ICT projects.
To study the influence of management support on successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County.	Management ensured availability of required resources and their support was visible throughout the project phases to a high extent The study found critical success factors in ICT project implementation and management. Project management and leadership as a factor affecting implementation of ICT projects was addressed to a high extent in Telkom Kenya Ltd The study found out that, there is need for ICT sector organizations implementing ICT projects to ensure quality leadership and management
To find out the impact of Information Technology infrastructure on successful implementation of ICT projects in Telkom Kenya Ltd in Nairobi County.	The study findings indicate that most ICT projects were undertaken for the right reasons and produced significant benefits in the organisation to a very high extent Stakeholders equally understood the linkage between the clear business model and the justification for the investment towards the project to a high extent.

5.3 Discussion

A discussion of findings is given below.

5.3.1 Technical Team

Project team work composition is important throughout the project life cycle. The project team should consist of the best people in the organization (Buckout et al, 1999, Bingi et al, 1999.) According to Summer (1999), Building a cross-functional team is critical and it should have mix of consultants and internal staff, so that internal staff can develop the necessary technical skills.

The research finding shows that employees were in consensus on the importance of the project team and composition. Majority to the respondents agreed that their project team showed commitment and achieved their targets and goals in good time to a high extent. The findings further revealed that most of the project teams were all inclusive and representative of all key stakeholders. This trend should be encouraged where there is buy-in, involvement and commitment from all stakeholders at project team composition level, so that ICT project implementation succeeds.

5.3.2 Project Planning

The Telkom Kenya Ltd put structures in place in order to ensure effective communication. In addition, Goals for ICT project were communicated to all stakeholders and all the project team members understood their roles and what was expected of them to a high extent. The findings however show that only to a moderate extent, did top management ensure establishment of effective communication structures to ensure flow of communication.

This is contrary to Falkowski et al, (1998) submission that effective communication is critical to ERP implementation and. Wee, (2000) who insisted that Management of the communication, education and expectations are critical throughout the organization during the ICT implementation. It is therefore critical for any organizations to have a well defined and elaborate enhanced system of communication to enable feedback reach those it is intended, and open communication flows in order to succeed in implementing ICT projects.

5.3.3 Management Support

The study findings indicate that majority of the employees received the necessary support while management ensured availability of required resources and their support was visible throughout the project phases to a high extent. According to Bingi and Buckhout, (1999) cited top management support as one of the critical success factors in ICT project implementation and management while effective executive involvement would significantly improve ICT project success throughout the implementation. Project must always receive approval from top management.

However, most of the employees indicated that incentive and compensation for the project team was considered to a small extent. It is critical that organizations implementing ICT projects communicate and provide incentives and compensation for their project team in order to motivate them, and hence increase productivity and commitment of the team which in turn leads to the success of the ICT project implementation.

Project management and leadership as a factor affecting implementation of ICT projects was addressed to a high extent in Telkom Kenya Ltd. The Telkom Kenya Ltd had put in place project leaders who had track record of Success in major ICT projects. Effective project management methodology tools were followed while goals and targets set out were realistic and attainable. The management ensured adherence to state regulations and policies to a very high extent. However, there was moderate consensus on how employees perceived the effectiveness of monitoring and evaluation process to ensure delivery of project and in time.

The above findings agree with Holland et al, (1999) submission that a project must be formally defined in terms of its milestones and critical paths determined. Managers without the right experience, profile and authority will not be able to manage projects properly. According to Rosario, (2000) an individual or group of people should be given responsibility to drive success in project management.

However, the study findings show that, there is need for ICT sector organizations implementing ICT projects to ensure quality leadership and management. There should be openness and accountability in monitoring and evaluation of the process, to ensure that the ICT project is on track and hence ensure effective implementation.

5.3.4 Information Technology Infrastructure

The study findings indicate that most ICT projects were undertaken for the right reasons and produced significant benefits in the organisation to a very high extent. Similarly to a high extent only, employees had knowledge of the critical functional processes that were optimized as part of the project, functional and technical requirements were well defined. Stakeholders equally understood the linkage between the clear business model and the justification for the investment towards the project to a high extent.

The findings are in line with Falkowski et al, (1999) argument that presupposes a need for justification for any project investment based on a problem and the change tied directly to the direction of the Company. Project mission should be related to the business need and should be clearly stated. According to Coley Consulting (1994), any ICT initiative that does not produce significant business value for the organization is probably being undertaken for the wrong reasons. The research shows that the two organization gave due consideration and ranked highly the issues under business case, and that stakeholders were incorporated from the start, hence attributing to the success of the ICT project implementation achieved.

5.3.3 Others Challenges in implementing ICT Projects

The research findings indicate that selection and recruitment of Consultants as well as in-adequate training of the implementers was a major factor among the non-predetermined factors. The perceived attitude of limited confidence in the workability of the technology, saboteurs of the project development process and external natural disasters were some of the factors cited to influencing the success of ICT project Implementation by most respondents.

5.4 Conclusions

The conclusions made from the study are given below: The ICT Project implementation in Telkom Kenya Ltd has been implemented moderately. The business case was considered as a major contributing factor which influence the implementation of ICT projects. These findings are in line with the research carried out by the Coverdale Organization (Cushing, 2002), which identified unclear business goals as the key factor determining the success or failure of ICT projects in organizations. ICT projects that were undertaken for the right reasons produced significant business benefits and values.

From the research study, it is also apparent that Project team composition, Effective communication, Top management and Project management and leadership are all essential in determining the success or failure of ICT project at Telkom Kenya Ltd. The finding of the study is consistent with Glaser, (2004) who emphasized the importance of executive support in aligning business with their projects. On the other hand, Gross, (2005) concluded that projects often fail due to improper or poor communication.

For any success in ICT project implementation, Effective project management which includes; planning, budgetary, monitoring and evaluation are critical and helps in achieving project goals, thus the need for project managers to remain aware and anticipate change as re-planning is necessary throughout the project. Planning is necessary to develop reasonable project estimates, enhance the management of customer and stakeholder expectations, mitigate project risks, establish and standardize a scope management process to develop concise project scope statements and handle issues consistently.

Sundari and Barwal (2008), insisted that ICT projects should be planned with accepTable accuracy, quality and with the involvement of all stakeholders. However, the implementation of ICT projects in Telkom Kenya Ltd did not fully incorporate unique areas specific circumstances on targets nor factored mitigating factors out of the control of the employees. To some extent the choice and recruitment of Consultants, wasyond the control of the implementers of the project.

Other factors cited that should have been included in the implementation of ICT projects in Telkom Kenya Ltd include inadequate training and skills of the implementers, expert consultants selection and post-implementation reviews/support. Similarly the perceived lack of confidence in the workability of the technology, saboteurs of the project development process and external natural disasters were factor cited affecting the success of ICT Project Implementation.

5.5 Recommendations

The Researcher recommends that the Telkom Kenya Ltd should pay more attention to the factors influencing the implementation of ICT projects particularly the Business Case as it directly relates the justification and the potential significant business benefits and values to all stakeholders. There is a need for proper leadership and management in all areas to in order to support the project throughout the project cycle. The organizations should adopt more adequate

communication systems to ensure there is effective communication flow of information and feedback. This will also facilitate monitoring and evaluation, to ensure that milestones are delivered within time and budget.

On the project Team and Composition, there is a need to equip the team with the necessary trainings inorder foster team work. The team composition should also be knowledgeable and skilled for the delivery of the project, and should be all inclusive and representative of all key stakeholders. For ICT projects to be effectively implemented in the Telkom Kenya Ltd there is a need for a clear and transparent performance incentive system that stipulates rewards for achievement and punishment/sanction for failure to perform.

Project teams should be motivated through incentives and compensation to encourage motivation and productivity towards achieving their results. ICT Project Implementation should be embraced by all employees in Telkom Kenya Ltd and not be seen as a preserve for top-management and Board only. There is inherent need for change management and culture change to be embraced by all employees and concerned stakeholders hence need for internalisation and appreciation of the concept, objectives and expectation of ICT Project implementation through training, and sensitisation.

Despite the numerous challenges related to ICT project implementation in the Telkom Kenya Ltd, the organizations and project managers should learn useful lessons from these failures which will give them an opportunity while focus on areas which is more likely to fail, thus reducing the possibility for project failure, "while elephants projects". Among the key areas of focus includes; adherence to best practice in project management as a discipline, ensuring that the ICT projects have clear objectives and understanding project trade-offs when making decisions regarding scope change.

5.6 Suggestions for further Research

The further research suggested by the researcher would be to consider a survey on the ICT sector which have been ranked as the best performers in implementing ICT Project Implementation and find out what other factors have influenced them to perform well. The study should include, apart from the ICT Project influencing factors, other factors like the nature of the industry, past profits and organization history, level of competencies of staff, government incentives among

others to determine whether they influence the success of ICT Project Implementation in the public sector of developing countries like Kenya

During the research study, it became apparent that there were a number of other ICT project such as Strategic Planning System (SPS), Automatic Meter Reading (AMR) which failed. This would be an area of interest for future study in order establish why these among other projects failed.

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APPENDICES

APPENDIX 1: LETTER OF INTRODUCTION

JOSEPH NDEMO
P.O BOX 24654, 00100
NAIROBI
Dear Sir/Madam,

RE: REQUEST FOR YOUR PARTICIPATION IN M.A. RESEARCH PROJECT

I am a student at the University of Nairobi pursuing a Master of Arts degree in Project Planning and Management. As part of my coursework, I am required to carry out and submit a research project report on *the factors* affecting implementation of ICT projects in Telkom Kenya Ltd.

To achieve this objective, I kindly request for your assistance in completing the attached copy questionnaire. I assure you the information you provide is purely for academic purposes and will be treated with utmost confidentiality. Should the finding of this Research Project be of interested to you or your organization, a copy would be available at the University of Nairobi Library.

Yours faithfully,

Joseph M Ndemo

Reg. No. L50/63918/10

APPENDIX 2: RESEARCH QUESTIONNAIRE FOR TELKOM KENYA LTD EMPLOYEES

Instructions

Please tick (✓) the box that matches your answer or fill the space provided

PART A: General Information

Date .....

1) What is your gender? (tick one)
   Male ( ) Female ( )

2) Age(tick one)
   20 -30 ( ) 21 -30 ( ) 31- 40 ( ) 40 and above ( )

3) What is your academic background?
   Certificate [ ] diploma [ ] undergraduate [ ] postgraduate [ ]

4) How long have you been working in your present capacity?
   Less than 3 years ( ) 3 to 5 years ( ) 5 to 7 years ( ) Over 7 years ( )

5) Kindly indicate your position / title in the organization?
   _____

6) How long have you worked for the industry?
   1 – 2 years ( ) 6 – 10 years ( ) Over15year ( )
   3 – 5 years ( ) 10 – 15 years ( )

PART B:

The questionnaire seeks to find out factors considered important in the implementation ICT projects.

1. Please indicate the type of ICT project under consideration in your organization:

   a. Infrastructure upgrade (Network expansion) [ ]
   b. Software / Application
      i. ERP / ISP implementation [ ]
      ii. SCADA Implementation [ ]
      iii. Any other, specify _____

2. What was your role in the indicated ICT project?
   a. Project sponsor [ ]

b. Management representative [ ]
c. Project team member
   i. Project Leader / manager [ ]
   ii. Technical expert [ ]
   iii. User representative [ ]
   iv. Any other specify _____

3. What levels of employees are involved in ICT project identification, implementation and decision making in your organization?

   a. Board and top management [ ]
   b. Top and middle management [ ]
   c. Other employees [ ]

4. At what level are employees involved in ICT projects?, tick all appropriate

   a. Requirements scoping and analysis [ ]
   b. Systems and design [ ]
   c. Implementation [ ]
   d. Rollout, training and usage [ ]

PART C:

Using a Likert 1-5 scale, with 1 being 'to no extent at all', 2 being 'to a small extent' 3 being 'to some extent', 4 being 'to a high extent' and 5 being 'to a very high extent', to what extent were the following factors considered important in the implementation of ICT projects in your organization? Please tick (✓) all as appropriate

Technical Team

Factors Under Consideration	1	2	3	4	5
Necessary trainings /workshops were conducted for the team to foster team work					
The project team members were experienced, knowledgeable and skilled for necessary for delivery of the project					
Project team showed commitment and achieved their targets and goal in time					
Project team was all inclusive and representative of all key stakeholders					

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Planning

Factors Under Consideration	1	2	3	4	5
Structures were in place to ensure effective project communication - within the project team and at all levels of the organization					
Top management ensured establishment of effective communication structures to ensure flow of project information to and from all stakeholders					
Goals/objectives for ICT project was communicated to all stakeholders					
Project team members understood their roles and what was expected of them					

Project management and Leadership

Factors Under Consideration	1	2	3	4	5
Project team received necessary support and tools required for the project necessary to achieve their targets and goals					
Incentives and compensation were offered to the project team for motivation and encourage towards achieving their goals / results.					
Top management support was visible throughout the project phases					
Top management ensured availability of resources (financial and human), as well as necessary facilities to ensure that the project team meet their targets					
Effective monitoring and evaluation process to ensure delivery of project in time and within budget					
The project leader had a track record of success with major it projects					
Goals and targets set out were realistic and attainable					
Effective project management methodology and tools were used					

IT Infrastructure

Factors Under Consideration	1	2	3	4	5
ICT project was undertaken for the right reasons					
ICT project produce significant business benefits and value					
Critical functional processes were optimized as part of the project					
Projects functional and technical requirements well defined and understood by all stakeholders					
Existence of a clear business model and justification for the investment towards the project.					

Based on your experience and to the best of your knowledge, which additional factors would you consider having major impact on the implementation of ICT projects in your organization, and yet not covering in this questionnaire? Please list two factor below:

.....

.....

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Thank you for your time and cooperation