



**UNIVERSITY OF NAIROBI**

**DETERMINANTS OF INFORMATION COMMUNICATION TECHNOLOGY  
PROJECT PERFORMANCE IN A SOFTWARE IMPLEMENTATION COMPANY  
IN AFRICA: A CASE STUDY OF INDRA LIMITED**

**BY**

**ALLAN KAHIU MUCHENE**

**P54/6731/2017**

**Supervisor**

**DR. SAMUEL RUHIU**

A project report submitted in partial fulfilment of the requirement for the award of Masters of  
Science in Information Technology Management of the University of Nairobi

**AUGUST 2019**

## DECLARATION

This research proposal is my original work and has not been submitted for examination in any other university

Sign: .....

Date: .....

Allan Kahiu Muchene

P54/6731/2017

This research proposal has been submitted with my approval as the University of Nairobi supervisor.

Sign: .....

Date: .....

Dr. Samuel Ruhiu

School of Computing and Informatics

University of Nairobi

## **DEDICATION**

I wish to dedicate this Research Project to our late daughter Iris Wamaitha Kahiu, we loved you but God loved you more. To my dear wife Monica you are an uncommon gift from God. I cherish you and am blessed to have you in my life. Without your never-failing sympathy and encouragement this research would not have seen the light of day.

## ACKNOWLEDGEMENT

First, my gratitude goes to our Almighty God for his mercies and grace that have enabled me to come this far.

I'll be forever grateful to the hundreds of people who were willing to give freely of their time and especially those who let me come back again and again with questions. There are too many of these people to list but gracious souls – like Dr. Samuel Ruhui, Eng. Muchemi, Professor Wagacha, Duncan Ngugi, Moses Rading, Dennis Musomi, and Elizabeth Njoki – each provided invaluable insights and abundant technical help.

The successful completion of this Research Project would not have been possible without the utmost support of many people. In particular I want to thank my research supervisor Dr. Samuel Ruhui whose guidance knowledge and understanding shaped the arguments in this research.

Heartfelt thanks go as well to my family Fredrick Muchene, Josephine Wamaitha, Christine Kanyi and Isaac Karanja who once again proved invaluable throughout the entire process.

The support, encouragement and assistance of many individuals were absolutely critical in the completion of this project. They include my friends in academia, Dennis Musomi, Moses Rading, Caroline Karega, Wilson Ireri and the Safaricom Revenue Assurance team, I really appreciate your friendship and encouragement in writing this Research Project.

My biggest debt of gratitude, of course goes to my wife who supported and energized me to continue with the research, God bless you abundantly.



## TABLE OF CONTENTS

DECLARATION .....	ii
DEDICATION .....	iii
ACKNOWLEDGEMENT .....	iv
TABLE OF CONTENTS.....	vi
LIST OF TABLES .....	x
LIST OF FIGURES .....	xii
ABBREVIATIONS AND ACRONYMS .....	xiii
DEFINITION OF TERMS .....	xiv
ABSTRACT.....	xv
CHAPTER ONE INTRODUCTION .....	1
1.0 Background of the Study .....	1
1.1 Regional Perspective of Project Performance.....	4
1.2 Problem Statement.....	7
1.3 Objectives of the Study.....	11
1.4 Research Questions .....	11
CHAPTER TWO LITERATURE REVIEW .....	14
2.0 Introduction.....	14
2.1 Background .....	14
2.2 Project Management .....	15
2.2.1 Project Management Guidelines .....	15
2.3 Project Failure.....	16
2.4 Theoretical Review .....	19
2.5 Conceptual framework.....	22
2.6 Empirical Review of the Study .....	32

2.7	Critique of the Existing Literature .....	32
2.8	Research Gaps.....	32
2.9	Evaluation criteria for choosing the conceptual Framework .....	34
2.11	Operationalization of the chosen Conceptual Framework.....	41
CHAPTER THREE RESEARCH METHODOLOGY .....		47
3.0	Introduction.....	47
3.2	Research Design.....	47
3.3	Target Population.....	47
3.4	Sampling Frame .....	48
3.5	Sample and Sampling Technique.....	49
3.6	Data Collection Instruments .....	50
3.7	Data Collection Procedure .....	50
3.8	Pilot Test.....	51
3.9	Data Analysis & Presentation .....	52
CHAPTER FOUR DATA FINDINGS, ANALYSIS AND DISCUSSIONS.....		54
4.1	Introduction.....	54
4.2	Response Rate.....	54
4.3	Reliability Analysis.....	54
4.4	Demographic Characteristics of the Respondents .....	56
4.4.1	Gender of the Participants.....	56
4.4.2	Age of the Participants.....	56
4.4.3	Academic Qualifications of the Participants.....	57
4.4.4	Position Held by the Participants in Projects.....	57
4.4.5	Participants' Working Experience .....	58
4.5	Descriptive Statistics.....	59

4.5.1 Top Management Support.....	59
4.5.2 Organizational Culture.....	61
4.5.3 Project Management .....	62
4.5.4 Project Team Competencies .....	63
4.5.5 Project Success.....	64
4.5.6 Communication Management.....	65
4.5.7 Stakeholders Management.....	66
4.5.8 Partner and supplier Management .....	67
4.5.9 Strategic Planning .....	68
4.5.10 Training and Education.....	69
4.5.11 Inter relationship between the determinants of project success.....	71
4.6 Inferential Statistics .....	72
4.7 Regression Analysis.....	72
4.7.1 Model Summary.....	72
4.7.2 Correlation Analysis .....	73
4.7.3 Analysis of Variance.....	74
CHAPTER FIVE SUMMARY, CONCLUSION AND RECOMMENDATIONS.....	76
5.1 Introduction.....	76
5.2 Summary of Findings.....	76
5.2.1 Top Management Support.....	76
5.2.2 Project and Organizational Culture.....	77
5.2.3 Project Management.....	78
5.2.4 Project Team Competencies.....	78
5.2.5 Stakeholders Management .....	79
5.2.6 Partners and suppliers Management.....	79



5.2.7	Training and Education .....	80
5.2.8	Strategic Planning .....	81
5.2.9	Communication Management .....	81
5.3	Comparison of finding with Secondary Data .....	84
5.4	Conclusion of the Study .....	90
5.5	Recommendation of the Study .....	93
5.6	Suggestions for Further Studies .....	94
	REFERENCES .....	95
	APPENDIX I: LETTER OF INTRODUCTION .....	105
	APPENDIX II: RESEARCH QUESTIONNAIRE .....	106

## LIST OF TABLES

<b><u>Table 1.1.1</u></b> Information communication and technology systems implemented by Indra in Africa .....	6
<b><u>Table 2.3.7.1</u></b> Identified conceptual frameworks applicable to the study of determinants of ICT project performance in Africa .....	34
<b><u>Table 2.3.7.2</u></b> Evaluation of the most-cited frameworks applicable to the study of determinants of ICT project performance in Africa .....	35
<b><u>Table 2.10:</u></b> Items used for measuring top management support and commitment.....	42
<b><u>Table 2.10.1</u></b> Items used for measuring strategic planning .....	42
<b><u>Table 2.10.2</u></b> Items used for measuring communication management .....	43
<b><u>Table 2.10.3</u></b> Items used for measuring project management .....	43
<b><u>Table 2.10.4</u></b> Items used for measuring project team competences .....	44
<b><u>Table 2.10.5</u></b> Items used for measuring stakeholder’s management .....	44
<b><u>Table 2.10.6</u></b> Items used for measuring partners and supplier’s management .....	45
<b><u>Table 2.10.7</u></b> Items used for measuring training and education .....	45
<b><u>Table 2.10.8</u></b> Items used for measuring dependent project success .....	45
<b><u>Table 3.1:</u></b> Target Population.....	48
<b><u>Table 3.2:</u></b> Sample Size Distribution .....	48
<b><u>Table 4.1:</u></b> Response Rate.....	51
<b><u>Table 4.2:</u></b> Reliability Analysis.....	52
<b><u>Table 4.3:</u></b> Gender Distribution of the Respondents.....	53
<b><u>Table 4.4:</u></b> Age of the Participants.....	54
<b><u>Table 4.5:</u></b> Academic Qualifications of the Participants.....	54
<b><u>Table 4.6:</u></b> Positions Held by the Participants.....	55
<b><u>Table 4.7:</u></b> Participants’ Working Experience.....	56
<b><u>Table 4.8:</u></b> Top Management Support.....	58
<b><u>Table 4.9:</u></b> Organizational Culture.....	59
<b><u>Table 4.10:</u></b> Project Management.....	60
<b><u>Table 4.11:</u></b> Project Team Competencies.....	61
<b><u>Table 4.12:</u></b> Project Success.....	62
<b><u>Table 4.13:</u></b> Communication Management.....	63

<b><u>Table 4.14: Stakeholders Management</u></b> .....	64
<b><u>Table 4.15: Partner and supplier Management</u></b> .....	65
<b><u>Table 4.16: Strategic Planning</u></b> .....	66
<b><u>Table 4.17: Training and Education</u></b> .....	68
<b><u>Table 4.14: Model Summary</u></b> .....	69
<b><u>Table 4.15: Analysis of Variance</u></b> .....	70
<b><u>Table 5.2 Summary of Conclusion</u></b> .....	74

## LIST OF FIGURES

<b><u>Figure 2.3.1: ITPOSMO Model (Heeks, 2003)</u></b> .....	21
<b><u>Figure 2.3.2: Factor Model (Heeks, 2004)</u></b> .....	22
<b><u>Figure 2.3.3: Descriptive framework for ICT success or Failure (David Gichoya, 2005)</u></b> .....	24
<b><u>Figure 2.3.4: Pinto and Slevin Critical success factors in projects framework</u></b> .....	28
<b><u>Figure 2.3.5: Research Conceptual Framework</u></b> .....	30
<b><u>Figure 2.3.6: Belassi and Tukul Belassi Framework</u></b> .....	33

## ABBREVIATIONS AND ACRONYMS

<b>ICT</b>	Information Communication Technology
<b>IS</b>	Information Systems
<b>PMI</b>	Project Management Institute
<b>IT</b>	Information Technology
<b>PMBOK</b>	Project Management Book of Knowledge
<b>PMO</b>	Project Management Office
<b>ANOVA</b>	Analysis of Variance
<b>ITPOSMO</b>	Information Technology, Processes Objectives, staffing and skills management, other resources time and money
<b>CSFs</b>	Critical success factors
<b>CM</b>	Communication Management
<b>PS</b>	Project Success
<b>PSM</b>	Partners and Suppliers Management
<b>PTC</b>	Project Team Competency
<b>SHM</b>	Stakeholders Management
<b>SP</b>	Strategic Planning
<b>TE</b>	Training and Education
<b>TMS</b>	Top Management Support and Commitment

## DEFINITION OF TERMS

**Project:** A set of interrelated expenditures and activities designed to achieve given objectives within a specified time period (Project Management Institute, 2005).

**Project Culture:** The shared assumptions, beliefs and values regarding the extent to which organizations value and support the integration of work and family lives for employees (Frese et al, 2009).

**Project Team:** Is a team whose members usually belong to different functions and are assigned to activities in a project. Usually project teams are only used for a defined period (Duarte & Snyder, 2005).

**Stakeholder:** Any group or individual who can affect or is affected by the achievement of the organization's objectives (Freeman 1984)

**Top Management Support:** This is deliberate support offered by the management to employees to enable them perform their duties well and attend to personal/family needs effectively as well (Straub, 2011).

**Management:** The lower level management consists of the Foremen and the Supervisors. They are selected by the middle level management (Graham & Bennett, 2001).

**Management Support:** It is the willingness of the high-level management staff in an organization to execute the job task functions (Domberger, 2008).

**Subjective Norm:** The person's perception that most people who are important to them think she/he should or should not perform the behavior in question (Fishbein and Ajzen 1975)

## ABSTRACT

Most information systems including current ICT projects in Africa fail either totally or partially. Explanations of why some Information Systems fulfill their expectations, whereas others fail, are complex and multi-factorial. The purpose of this study was to establish the determinants of information communication technology project performance in a software implementation company in Africa. The study was carried out in Indra and had the following objectives: to examine how top management support influences ICT project performance in organizations in Africa ,to evaluate how organization and project culture influences ICT project performance in organizations in Africa ,to determine how project planning influences ICT project performance in organizations in Africa and to establish the interrelationship between the factors affecting information communication technology project success.

The target population of this study included all cadres of Indra and its client's staff. The total population in the study was 304. A descriptive research design was adopted. Random sampling was used in this study. The study made use of closed ended questionnaires as instruments of data collection. Quantitative data was first coded then analyzed using Statistical Package for Social Sciences (SPSS). After interpretation, the findings were presented in tables using frequencies and percentages.

The study revealed that the influence of top management support is significant on strategic planning, and on project management. Also, the results suggest that the influence of partners and supplier's management is significant on training and education. Furthermore, the findings show that the influence of communication management is significant on project management, on project team competency, and on stakeholder's management. Areas for further research work included a study on: factors contributing to lack of senior management support in projects. These would highlight the issues underlying the failure of project implementation and inform decision makers on the necessary actions to be taken.

## CHAPTER ONE

### INTRODUCTION

#### 1.0 Background of the Study

ICT Projects in Africa are currently on the rise though most of them do not get completed on time or fail set expectations. In recent years, project managers have been called upon to take key responsibility when an ICT project comes to a standstill, go over budget, over time, or are defective in function upon completion. Organizations around the world face colossal information communication technology project failure rates often wasting millions of dollars per failed project Discenza (2007). The Robbins-Gioia Survey (2001) was a study over the perception by enterprises of their implementation of an E.R.P. (Enterprise Resource Planning) package. 232 survey respondents spanning multiple industries including government, Information Technology, communications, financial, utilities, and healthcare. A total of 36% of the companies surveyed had or were in the process of implementing an ERP system and the key findings were that 51% viewed their ERP implementation as unsuccessful. 46% of the participants noted that while their organization had an ERP system in place or was implementing a system, they did not feel their organization understood how to use the system to improve the way they conduct business.

The KPMG Canada Survey (1997) indicates that in April 1997, KPMG Canada sent a survey questionnaire focusing on IT project management issues to Canada's leading 1,450 public and private sector organizations. The main purpose was to outline the reasons behind the failure of Information Technology projects. The survey scope indicated that out of 1,450 questionnaires sent, 176 were analyzed. Of these, 61 % reported details on a failed IT project, more than three quarters blew their schedules by 30% or more and more than half exceeded their budgets by a substantial margin. The Chaos Report (1995) was the first survey made by the Standish Group. This report is the landmark study of IT project failure. The respondents to the Standish Group survey were IT executive managers and the sample included large, medium, and small companies across major industry segments: banking, securities, manufacturing, retail, wholesale, health care, insurance, services, and local, state, and federal organizations. The total sample size was 365 respondents representing 8,380 applications. In



addition, The Standish Group conducted focus groups and personal interviews to provide qualitative context for the survey results. The key findings were that “31.1% of projects will be canceled before they ever get completed and 52.7% of projects will cost over 189% of their original estimates”.

In the larger companies, the chaos report indicates that only 9% of their projects come in on-time and on-budget and when these projects are completed, many are no more than a mere shadow of their original specification requirements. Some of these projects only have approximately 42% of the originally-proposed features and functions. The OASIG Study (1995) was undertaken under the auspices of OASIG, a Special Interest Group in the UK concerned with the Organizational Aspects of Information Technology. The scope of the study included a sample of 45 experts employed primarily by Universities or Consultancies. On average they have each over 20 year’s personal experience representing a cumulative knowledge base of over 900 years.

They drew their opinion from a sample of approximately 14,000 user organizations. 31 of these interviewees (69%) include consultancy work as a major component of their work, and 27 (60%) include research. Data was collected by interviewing researchers and consultants using a semi-structured interview schedule. The key findings were that at best 7 out of 10 IT projects “fail” in some respect. Hulme (1997) tells us that “MIS projects and associated procurements take place in an environment characterized by the following: Lack of management continuity and an incentive system that encourages overly optimistic estimates of the benefits that can be attained from doing the project.” Leicht (1998) discloses that high user expectations can actually be the cause of project failure.

Field (1997) states that “projects fail too often because the project scope was not fully appreciated and/or user needs not fully understood.” Hodgson (2002) proclaims that “projects fail – that’s the fact of life. Too many fail because the average project is like an iceberg – 9/10ths of it lay hidden from view”. Hoffman (2003) reveals that projects fail because of poor alignment between IT departments and business users. And in another article Hoffman (2003) proclaims that project managers too often act as “process cops and report compilers and lose sight of what they’re supposed to be doing – to make sure projects are running effectively”. Julia King (2018) reports, “At companies that aren’t among the top 25% of technology users, three out of ten IT projects fail on average. Lewis (2003) promulgates that “On average, about 70% of all IT-related projects fail to meet their objectives.” In this

case Lewis includes not only projects that were abandoned (failed), but also those that were defectively completed due to cost overruns, time overruns, or did not provide all of the functionality that was originally promised.

Project management is defined as the act of overseeing all activities and tasks needed to maintain a desired level of excellence. According to Kerzner (2013), the definition of project success has been modified to include completion within allocated period, within the budgeted cost and at the proper performance or specification level.

According to Johnson (2001) the success rate for projects has actually increased since the original Standish CHAOS report. Johnson attributes this increased success rate to more project people using the Standish “Recipe for Success” that was established in 1998. Johnson tells us that the overall project success rate has increased from 16% in 1994 to 28% in 2000. According to Johnson’s report the top contributor for project success is executive support as lack of executive support can and does jeopardize projects. Positive Executive support positively influences project outcome. Gray and Larson (2000) emphasizes that one of the main causes of project failure is that the organizational culture is not supportive of projects.

The creation of a supportive organizational culture is critical for the success of any project and ultimately the growth of the business. They further stated that there is a strong interrelationship between project management structure, organizational culture, and project success. Gray and Larson (2000) described the relationship between organizational culture and successful projects by means of a riverboat metaphor where culture is the river and the project is the boat. If the culture of the organization is conducive for completing projects successfully it is like paddling downstream. In such an environment teamwork and cross-functional operation are the norm, conflict is recognized and dealt with and excellence is the driver.

In an opposite environment where effective project management is inhibited, it is like paddling up stream. Everything requires more effort, more time, and more attention. In such an organization teamwork would be discouraged, conflict would be rife or ignored, risk is avoided, and projects would face several obstacles. However, Gray and Larson (2000) stated that the ideal culture is not at any extreme of the dimensions they identified. An optimal culture would balance concern with output and processes to achieve those outcomes. Graham and Englund (1997) have designed a tool called “PEAT” (Project Environment Assessment

Tool) for measuring and determining the environment that supports project success. It has not been developed to measure project success, but to determine how well organizations support project management.

### **1.1 Regional Perspective of Project Performance**

Nazeer Joseph, Wikus Erasmus, and Carl Marnewick from South Africa in their book titled 'The Idle State of Information and Communication Technology Project Management in Africa' looks at information and communication technology (ICT) projects and project management in South Africa. The authors show that there is more focus on product success than on project management success and that soft skills matter more than technical skills to achieve project outcomes. Hence, they suggest that project management remains in a kind of idle state in Africa and that there is still much to do to increase the chances for ICT projects' success on the continent.

Corruption, bad governance, and lack of (project) management capacity have also been singled out as silent killers of projects and growth in Africa Moyo (2009).

The East African (2002) reports that failed rural ICT projects ate up \$10m in Uganda. It further claims that only 923 projects out of 3,863 that have been completed are still in operation countrywide meaning 76% of the projects were unsustainable which according to Heeks (2002) falls under the second category of failure where an initiative first succeeds but is then abandoned after a year or so.

According to Heeks (2003) as many as 35% of E-government projects in Africa can be classified as total failures while 50% are partial failures. A number of studies looking at E-government implementation in Africa generally as well as those focusing at country level have often bewailed the large number of E - government projects introduced that end up not living up to the promise (Mutula and Mostert 2010 , Heeks 2003).

According to Gichoya (2005) the Kenyan ICT project environment is characterized by:

- Most ICT projects are initially donor funded.

- Some donations are made without prior consultation or carrying out a needs analysis by the recipient organization.
- Operational/running costs are met by the government. Funding (capital and human resource requirements) ends with the project phase.
- The budgets for ICT are inadequate but rising.
- A lack of ICT policies and master plans to guide investment. To the extent that, with a number of donors funding ICT, there have been multiple investments for the same product due to lack of coordination.
- A focus on ICT applications that support traditional administrative and functional transactions rather than on effective information processing and distribution within and without government departments;
- Unstable ICT resources.

### **1.1.1 Indra Limited**

Indra Limited is a software development company that is organized around six vertical markets: Energy and Industry, and Security; Transport and Traffic; Telecom and Media; Finance and Insurance and Public Administration and Healthcare. Over the years they have gained comprehensive insight into each business and crafted solid relationships with Clients. This knowledge, coupled with latest generation technology, allows Indra to create unique in-house solutions and services for each market segment.

Indra provides its clients with an offer that is both complete and of value which ranges from consultancy, project development, and systems and applications integration to outsourcing of IT systems and business processes. This offer is structured into two primary segments: Solutions and Services. The offer in Solutions includes a wide range of systems, applications, and components for obtaining, processing, transferring, and subsequently presenting, data and information, which are basically aimed at controlling and managing complex and/or critical processes. Indra has a wide supply of consultancy, which includes technological, operations and strategic consultancy, which is offered by Indra Business Consulting.

In general, Indra solutions serve the core of the business operation of their clients and require as an essential capability the integration of systems, i.e. the design, configuration, development, and implementation of complete components, applications, and IT systems, featuring their own and third-party products. Indra also manages outsourced Business Processes. Indra has become an outstanding reference on the markets on which it operates, both nationally and internationally. With references in more than 10 African countries, over 60% of Indra's annual revenues come from the international markets. Most of the projects undertaken by Indra have been perceived to be successful.

The organization was settled on due to the ease of getting data and the various projects undertaken across Africa.

Country	Company	System / Project	Sector	Customers
Cameroon	ENEO - Energy of Cameroon	Implementation of a Commercial Management System and Energy Balance Module Project	Utility- Electricity	Managed over 1,500,000
Kenya	NCWSC - Nairobi City Water and Sewerage Company	Implementation of a Commercial Management System and Stores procurement and management system	Utility- Water	Managed over 1,500,000
Mozambique	EDM - Electricidade de Moçambique	Implementation of a Commercial Management System	Utility- Electricity	Managed over 600,000
Uganda	UMEME	Implementation of a Customer management and information system and Incident management system	Utility- Electricity	Managed over 600,000
Zambia	ZESCO - Zambia Electricity Supply Corporation Limited	Implementation of a Customer management and information system, Design and construction system, Incident management system, Plant and Equipment maintenance system ,Finance management system , stores and procurement management systems , Transport management systems	Utility- Electricity	Managed over 600,000
Malawi	ESCOM - Electricity Supply	Implementation of a Commercial Management System	Utility- Electricity	Managed over 600,000

	Corporation of Malawi Limited			
Kenya	KPLC -Kenya Power and Lighting Company	Implementation of an Integrated customer Management System, Facilities data base system, Design and Construction Management System, Incident management system and Distribution maintenance management system.	Utility- Electricity	Managed over 600,000
Zimbabwe	ZETDC	Integrated customer systems, Incidents management systems and Design and construction management systems	Utility- Electricity	Managed over 600,000
Kenya	KAA - Kenya Airports Authority	Implementation of an ERP system and a data warehouse solution	Transport	Managed over 20,000
Kenya	KETRACO - Kenya Electricity Transmission Company Limited	Implementation of an ERP system	Energy	Managed over 20,000
Ghana	ECG - Electricity Company of Ghana Limited	Implementation of a Commercial Management System	Utility- Electricity	Managed over 20,000

Table 1.1.1: Information Communication and Technology Systems Implemented by Indra in Africa

## 1.2 Problem Statement

An ICT project implementation can only be perceived to have succeeded if the perceived benefits are realized. According to Sauer (1993), the costs of failure are various.

"Economically, there is the cost of wasted investment in equipment and labour and the cost of missed opportunities when a system promises benefits but fails to provide them". The issue of ICT project 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. ICT success or failure in

developing countries can be categorized into three 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 is partial failure in which major goals are unattained or in which there are significant undesirable outcomes. The last is success of an initiative where most stakeholders attain their major goals and do not experience undesirable outcomes. Heeks categorization is relevant since it can be used to categorize the projects implemented by African companies using the above criterion as the case may be. In a study examining project performance and organizational issues, Might and Fischer (1985) defined six measures of project success which were

1. Overall: What is the overall perception of project success?
2. Cost: Is the final cost over or under the initial budget?
3. Schedule: Is the final completion time over or under the initial schedule?
4. Technical goal 1: What is the overall perception of the technical performance of the project compared to the initial specifications?
5. Technical goal 2: What is the overall perception of the technical performance of the project compared to other projects in the organization?
6. Technical goal 3: What is the overall perception of the technical performance of the project compared to the problems encountered during the project?

Pinto and Slevin (1987) identified nine factors that were critical to the success of projects which were, clearly defined goals, competent project manager, top management support, competent PM team members, sufficient resource allocation, adequate communication channels, control mechanisms, feedback capabilities and responsiveness to clients. Having these factors does not guarantee project success, but it is quite clear that not having these factors increases the likelihood of project failure significantly.

Determinants of success are those occurrences whose presence or absence determines the success of an ICT project. They can be drivers or enablers as described by (Moran 1998, Riley 2000, Doherty et al. 1998). Their absence can cause failure and their presence can cause success. Drivers are the factors that encourage or reinforce the successful implementation of ICT projects. The factors for failure are those occurrences that constraint proper implementation of ICT projects in government. These can either be barriers or

inhibitors as described by Saul and Zulu 1994. Barriers can be considered as those occurrences that hinder ICT implementation.

DeLone and McLean (2002, p.2) acknowledged the difficulty in defining information system success and noted that different researchers address different aspects of success, making comparisons difficult and the prospect of building a cumulative tradition for I/S research similarly elusive.

As stated by Doherty et al (1998), the factors that influence the ultimate level of success or failure of informatics projects have received considerable attention in the academic literature.

It has been suggested by other researchers that issues preventing successful IT projects relate to project management and organizational behavior rather than to the technology (Davis, 2016, Fan, 2010). Furthermore, the challenges facing IT project performance are largely organizational and not technical in nature (Abdullah, 2013). Numerous studies have distinguished deficiencies in the treatment of organizational aspects as being a substantial cause of IT projects' failures, and other studies have found that organizational factors were behind the projects' successes (Doherty et al., 2003, Hung et al., 2014, Hussein et al., 2007, Nasir and Sahibuddin, (2011). In addition to that, McManus and Wood-Harper (2007) found that management issues accounted for 65% of the factors identified with failed projects. Moreover, Peng and Nunes (2010) suggests that IT project failure in China can be attributed to organizational issues such as lack of top management support and lack of IT expertise. Also, Al-Braithen (2010) asserted that there has been too little consideration of the important role of social factors in shaping IT project success. Hussein et al. (2007) found that organizational factors are, indeed, highly significant in ensuring project success. Furthermore, in a comprehensive study on the CSFs in 43 articles during the period of 1990 to 2010, Nasir and Sahibuddin (2011) suggested that organizational factors (94%) overwhelmed technical factors (6%) in terms of importance regarding IT project success.

With respect to Kenya, the situation is quite similar. The difficulties relating to IT project development and implementation are more organizational and behavioral than technical in nature. Gichoya (2005) found, in his study of Kenyan e Government initiatives, that the implementation of IT projects has been problematic, and that financial constraints and lack of ICT policies and master plans affect most projects.

Several attempts have been made to identify and investigate the factors that are responsible for IT projects' failure. Gichoya' s (2005) study was the first to discuss in IT



projects in general within the Kenyan context. On the other hand, their research was very limited. They did not take into account the determinants interrelationships. In addition, they used very limited factors in their study without providing an in-depth literature review of the investigated factors. Other studies have the same limitations and are often directed toward a project, such as Enterprise Resource Planning or a certain sector like Government.

Some of the studies in the literature approached the issue of IT project success from the perception of project managers and end users (Davis, 2014). Moreover, there were limited studies examining the perception of success from a senior management point of view (Davis, 2014). Therefore, as the problem described is an organizational issue and is not concerned with a specific project only, it is very important to gain a higher view from the executives' level. Hence, the senior management, who have an overview of most of the IT projects within the organization and are involved in many issues related to these projects, should possess in-depth organizational and managerial knowledge regarding IT projects, and would be authorized to access information relating to current and future organizational strategies (Louchart, 2012). As a result, it is very important to tackle the problem from the senior management perspective.

In summary, most studies conducted in developed countries (Dezdar and Ainin, 2011, Ngai et al., 2008) list the factors without investigating their impacts on project success (Gunathilaka et al., 2013), and there is a need to investigate the determinants interrelationships (McLeod and MacDonell, 2011). Lastly and importantly, the data commonly were collected based on either the project managers' or end users' perspectives, whereas the senior managers would have a more comprehensive view of IT projects (Al-Taie et al., 2015, Hu et al., 2014).

To close this gap and to further understand the determinants of ICT project performance requires an understanding of the relationships between all the factors that lead to IT project success and their impact. Therefore, a study into implemented projects across Africa may help to identify the determinants of information communication technology success and verify their impact on IT project success.

## **1.3 Objectives of the Study**

### **1.3.1 General objective**

The general objective of the study is to find out the determinants of information communication technology project performance in organizations in Africa.

### **1.3.2 Specific objectives**

- i. To examine how top management support influences ICT project performance in organizations in Africa.
- ii. To evaluate how organization and project culture influences ICT project performance in organizations in Africa.
- iii. To determine how project planning influences ICT project performance in organizations in Africa.
- iv. To establish the interrelationship between the factors affecting information communication technology project success.

## **1.4 Research Questions**

- i. Does the attention shown by top management in ICT projects reflect positively on the performance for organizations in Africa?
- ii. What will increase the chances of Information Technology projects success?
- iii. How does project culture influence ICT project performance in organizations in Africa?
- iv. To what extent does project planning influence ICT project performance in organizations in Africa?

## **1.5 Significance of the Study**

- i. Project Based Organization

The study findings will provide insightful knowledge to organizations in Africa, government ministries and international companies at large on the determinants of ICT project performance. This will not only help in implementing ICT project performance initiatives in

organizations but will also help reduce wastage and high costs incurred due to poor performance. The study will also be a reference point for ICT project performance or success. This study will also provide key information on challenges ICT project performance faces in organizations and as a training tool.

ii. Corporations

To the corporations, this study will help scrutinize ICT project performance challenges faced by organizations in Africa. Corporations will use the study findings to develop better ICT project performance initiatives.

iii. Body of Knowledge

The findings of the study will also contribute to the body of knowledge relating to ICT project management specifically on team management and team performance.

iv. Project Managers and Management Teams

It is also predicted that this study will assist project managers and management teams to greatly understand the implications of ICT project performance. The findings of this study will contribute significantly to the available metrics for evaluating project performance.

## **1.6 Limitations of the Study**

i. Measuring Success and Failure

There are many ways to measure success and failure, but there is no strict dividing line between the two when it comes to measuring projects. Baker (1997) concludes, “Like everything else, the definition of project failure is in a state of flux.” And O’Brochta (2002) declares that “the big problem with assessing project success is that it is not precise.” O’Brochta continues, “This dynamic can often be the Achilles heel for a project. Without a dependable understanding of what constitutes success, the project is placed in the untenable position of being judged against differing criteria, and invariably becomes one more failure statistic reported by research firms such as Standish, Gartner, Forrester, and others.”

## **1.7 Assumptions of the study**

ICT Projects outcome is influenced by several internal and external factors. Project management processes are key determinants of the project outcome. First, this study assumed

that the processes significantly influence the overall time, cost, quality and end user satisfaction. In particular, the initiation and planning phase defines the subsequent stages of execution, monitoring, controlling and closure. Secondly, each stage was presumed to influence project outcome to different extent. Finally, the research assumed that the respondents would be objective, respond truthfully and that the information provided would be accurate without bias.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

This chapter reviews the literature relevant to the current study with a critical focus on determinants of ICT project performance in Africa. By critically evaluating gaps in the previous research studies, this chapter will provide information to support this study. The chapter therefore begins by looking at theoretical review, followed by empirical reviews, the conceptual framework, critique of the existing literature, summary and research gaps.

#### **2.1 Background**

From the literature review, top management support is one of the prime factors for achieving the project success. In absence of top management support, the project managers despite having excellent skills may fail at any stage of the project (Meredith & Mantel, 2010). Top management support results in availability of project resources. Top management support should not be discussed as the only single paradigm which promotes project success (Young & Jordan, 2008). It is not the only as a valuable template for project success (McComb et al., 2008; Naranjo-Gil, 2009).

Moreover, project managers' transformational leadership is considered as an important element in project success factors (Yang et al., 2013). Nevertheless, not all project managers have transformational leadership skills. Some top management staff can also intentionally sabotage a project by not providing the required resources leading to failure. This can also lead to poor project plans and delays (Lysons & Farrington, 2006). Project leaders should be all rounded in both technical capabilities and management skills (Morgan, 2012).

Further, project culture though very critical in project performance, it tends to change as external environment changes. Culture cannot also be transmitted genetically though it can be learnt (Fischer et al., 2009). Culture can only be passed on through socialization processes within specific groups, which require communication of key symbols, ideas, knowledge and values between individuals and from one generation to the next. This is often affected by staff

turnover. Influence of cultural differences in projects can unfold in direct or indirect way. Culture is formed by a set of values, beliefs, assumptions, common understandings, expectations, attitudes, behaviors, thinking, norms and traditions of the people in the company (Davidson, 2000). However, people have different views and perspectives of the above factors at any one given time which may negatively affect project performance. Culture encourages the implementation of objectives hence the success of projects.

## **2.2 Project Management**

According to PMI (2008), project management is the application of knowledge, skills, tools and techniques for implementing activities to meet project requirements. ICT Project management is a strategy to manage ICT projects efficiently and effectively to achieve the success of ICT projects (Demir & Kocabas, 2010). Understandings of ICT project management is fundamental to the efficient use of resources and contribute to increased productivity (Jo & Barry, 2008).

### **2.2.1 Project Management Guidelines**

Project Management Institute (PMI 2013) has published guidelines on the integration of project management in the publication A Guide to the Project Management Body of Knowledge (PMBOK), which has been internationally recognized in the discipline of project management. ESI International has written a very good model of integration of project management guidelines in the publication PROJECTFRAMEWORK. Carnegie Mellon University, Software Engineering Institute (SEI) has published the Capability Maturity Model Integration (CMMI), which is recognized internationally. International Business Machine (IBM), Computer Sciences Corporation (CSC), various universities and IT standards committee has issued guidelines established IT integration in the IT discipline. BPMI.org integration has issued guidelines on business process modeling language (BPML) (Peter 2014).

In a standard project management methodology, ICT project management life cycle consists of an initiating phase, the planning phase, executing phase, monitoring & controlling phase and closing phase. It also named the five process groups (PMI, 2013; Schwalbe, 2010). Apart from understanding the ICT project management processes, ICT project managers should also have an understanding of some areas of knowledge embodied in ICT project

management (PMI, 2013; Schwalbe, 2010). Schwalbe (2010) and PMI (2013) outline the ten knowledge areas of project management ICT.

Although many standard methodologies and best practices of project management existed and being used internationally such as PMBOK, ITIL, CMMI-DEV, PRINCE2, Adaptive or Agile Methodology (ISACA, 2008), PPISA (MAMPU, 2010) and various studies on project management has been conducted by previous researchers (Morris, 2010), but literature had also shown that there is still room for improvement. Nor'ashikin (2013) reported in her study on the management of public sector ICT projects in Malaysia showed less use of standard guidelines of project management methodology such as PMBOK only 4% and PRINCE2 only 5% which is 50% used own approach and 25% no specific methodology being used. The study also showed that only 34% of the 471 respondents are satisfied with the ICT project management practice in their agency.

The project lifecycle and management structure is different in each organization and therefore a project management methodology is not suitable for all cause there is a need flexible methodology. Flexibility here means that the process can be built according to the requirements or the suitability of the organization or department. Choosing the inappropriate methodology in organizational structure will not achieve the promised benefits (Garcia, 2005). This then causes the standard project management methodology does not apply to existing entirely as needs change constantly according to the current demand and need access to information on-line.

According to Seda Cansiz & Fatma Pakdil (2012), major factors that have made a difference in the business world are the speed, flexibility and innovation. Rapid changes in circumstances cause the need to make quick decisions have forced the company to adopt a more flexible approach, lean, and the transformation of management approach.

## **2.3 Project Failure**

Most information systems including current ICT projects in Africa fail either totally or partially. Explanations of why some Information Systems fulfill their expectations, whereas others fail, are complex and multi-factorial. The most recurrent factors of failure are as listed below.

### **2.3.1 Incomplete/Changing Requirements**

According to (UK Health, 2003) requirements issues accounted for 40% of the causes of Software project failures, hardware failures for 26%, software bugs 11%, maintenance issues 6% and system use around 17%". According to (Standish, 1995) CHAOS survey, the top two "project impaired" factors were "incomplete requirements" and "lack of user involvement". Also according to Annie I. Anton, (2003), the software industry is "clearly, facing a requirements engineering crisis. Finding and fixing a software problem after delivery is often more expensive than finding and fixing it during the requirements and design phase". It is important to understand the problem before expressing the requirements for the solution. It is normal that small projects can succeed without formal requirements engineering, but any project of a considerable size and complexity requires proper requirements (Annie, I. Anton, 2003). As argued by (Nuseibeh, and Easterbrook, 2000) the primary measure of success of a software system is the degree to which it meets the purpose for which it was intended. Broadly speaking, software systems requirements engineering is the process of discovering that purpose, by identifying stakeholders and their needs, and documenting these in a form that is agreeable to analysis, communication, and subsequent implementation.

### **2.3.2 Poor Planning**

Dvir et al. (2003) argues that even though a decent level of planning for a successful project is vital, there is not an essential positive correlation between planning and success - if not negative all together. Kippenberger, (2000) believes that in reality being able to perform a project according to what has been planned is an exception rather than a norm. He actually believes that too much emphasis on planning and trying to stick to it would decrease the chances of success for a project. He reveals two important points related to excessive attachment to the plans; firstly, financial planning focuses more on the cost than the time, so spending excessive efforts to save money to avoid cost overruns, will create delays which result in time overruns that are more costly than what was planned for.

Secondly, when it comes to time planning (scheduling), project managers either constantly look backwards or so fixed at the present moment to compare the progress according to the plan which consequently prevents them from looking forward and anticipating changes and doing corrections in time.

### **2.3.3 Lack of top management support**

Several research and studies on the Information system projects failure put vast amount



of emphasis on insufficient support from senior management and leadership through setting unclear purpose from employing a certain project, incapability to manage complexity, undernourishing initiatives, failure to anticipate short-term disruptions, inability to demonstrate the invisible progress and eventually disregard for the stability and maturity of the used technology as a major cause of Information system failures. Glaster (2005) underlines the necessity to provide the most qualified staff and resources for supporting initiatives in establishing a new Information system project. He also admits the fact that any new changes resulted from newly introduced Information System project would for sure disrupt in short-terms the everyday routine of the work in any system. This needs support and encouraging words of the top management to mitigate the frustration raised in the morale of subordinates.

Glaster (2005) suggests that top management must continuously strive to reveal the fulfillment of series of short-term deliverables to the organization. The last but not the least, he recognizes the fact that an adopted technology in a Information System project could require a lot to reach to a certain level of stability, supportability and maturity prior to be completely acceptable by the users and the host organization. The emerging technologies of this kind always bear with them a high risk of failure on one hand, but on the other hand they could provide a tremendous competitive advantage by letting the host organization achieve differential value by being an early adopter. Running pilot projects experiencing the immature technology with limited implementation scope and minimizing the potential harms are considered as a subtle solution in these cases.

#### **2.3.4 Under Funding and Bad Estimations**

Funding that does not last right throughout a project may contribute to delaying the project's completion (Procaccino J. Drew 2002). Further, practitioners have reported the importance of a sponsor/champion from their process perspective [Procaccino and Verner 2001) Having enough funds to last throughout a project also relates to the importance practitioners place on having other stakeholders participate in the decision-making process

#### **2.3.5 Poor Relationship Management**

This relates to User Relationships. Lack of trust and inadequate user involvement, unclear roles and expectations among users or other stakeholders can lead to Information system project failure

### **2.3.6 Corruption**

Corruption is a constant concern for countries that face economic problems (D'Agostino, Dunne, & Pieroni, 2016). Increasingly, researchers have devoted extant literature to the discussion of the phenomenon; however, these discussions have focused mainly on the relationship between corruption and variables, such as economic development (Huang, 2016; Treisman, 2000); social effects (Saha & Gounder, 2013)

Despite the extensive research devoted to the subject, there is limited research on the potential impact of corruption on project failure. Some researchers (Corojan & Criado, 2012; Heeks, 1999; Kim, 2014) have mentioned that corruption may influence e-government project failure, but they did not discuss how this really happens. The closest research on corruption and projects failure is Aladwani's (2016) theoretical exposition on how corruption could be a source of e-government project failure.

## **2.4 Theoretical Review**

This section discusses the theories that the study is guided by and based on. The study will be based on stakeholders' theory, project management theory, team work theory and Self-Justification Theory. Sekaran (2003) states that "The theoretical framework discusses the interrelationships among the variables that are deemed to be integral to the dynamics of the situation being investigated. Developing such a conceptual framework helps us to postulate or hypothesize and test certain relationships and thus to improve our understanding of the dynamics of the situation."

### **2.2.1 Stakeholder Theory**

The Stakeholder Theory exhaustively covers the various stakeholders involved in project implementation such as donors, researchers, management and even the ultimate users of the project (Dennis, 2009). The Stakeholder Theory explains how these elements influence successful implementation and performance of ICT projects in Africa. It is on this basis that this study is grounded on this theory. It is important to involve beneficiaries in projects activities from the start. Stakeholder's Theory argues that every legitimate person or group participating in the activities of a firm or organization, do so obtain benefits, and that the

priority of the interest of all legitimate stakeholders is not self-evident (Donaldson & Preston, 2010).

Stakeholder Theory pays equal credence to both internal and external stakeholders; employees, managers and owners as well as financiers, customers, suppliers, governments, community and special interest groups. User involvement enhances economic cohesion as they recognize the value of working in partnership with each other and organizations (Miles, 2012). Phillips (2009) noted that user's involvement also adds economic value both through the mobilization of contributions to deliver regeneration and through skills development, which enhances the opportunities for employment and an increase in community wealth, gives residents the opportunity to develop the skills and networks that are needed to address social exclusion.

This theory therefore assists in the better understanding of the influence of user involvement on ICT project implementation that leads to economic and social growth of the communities (Anderson, 2013).

### **2.2.2 Team Work Theory**

One of the most influential models of teamwork theory was developed in 1965 by Bruce Tuckman. His original model identified four stages that all groups pass through as they move from "newly formed" to "high-performance" teams. In 1977, he revised the model to include a fifth stage. Those stages are Forming, Storming, Norming, Performing, and Adjourning. During the Forming stage, members of the project team meet each other and learn about the tasks they will need to perform. Team members will try to see how they fit in with each other and understand what is expected of them.

During this stage, it is critical for the project manager to provide structure and direction for the team. Clearly defining the project's objectives and making sure each team member understands their role and responsibilities will help you lead the team through this stage successfully. According to Benson and Lawler (2007), pressures deriving from the need to develop new ideas in dynamic, uncertain and complex environments causes start of team conflicts. The Storming stage is characterized by interpersonal issues such as conflict and polarization.

During this stage it is common for team members to challenge each other, including the project manager. Team members will also question what they are doing and how it is being done. As the project manager, this will likely be the most challenging time leading your project. Some teams fail to achieve the high performance expected of them at this level. Understanding that this type of conflict is normal for any team will help you pass through this stage successfully. During this stage, some of the skills that will help you build your team are conflict management, active listening, and relationship building. It is also important for you to be assertive, confident, and positive during this stage, especially if some of the team members are challenging your leadership (Sims, Salas & Burke, 2005).

As conflicts become less intense and the team members begin to understand and accept each other, the team will gradually move into the Norming stage. It is during this stage that your team starts to come together and is able to focus more effectively on the project tasks and objectives. During this stage, you will want to focus on keeping everyone moving in the right direction. Communication and constructive feedback will help you do this (Aritzeta & Alcover, 2006). In the Performing stage, team members are comfortable with each other and group norms have been accepted.

### **2.2.3 Project Management Theory**

Project management is defined as the discipline of initiating, planning, executing, controlling, and closing the work of a team to achieve specific goals and meet specific success criteria (Dennis Lock, 2009). A project is a temporary endeavor designed to produce a unique product, service or result with a defined beginning and end usually time-constrained, and often constrained by funding or deliverables undertaken to meet unique goals and objectives, typically to bring about beneficial change or added value. The temporary nature of projects stands in contrast with operations which are repetitive, permanent, or semi-permanent functional activities to produce products or services. In practice, the management of these two systems is often quite different, and as such requires the development of distinct technical skills and management strategies.

The theory of project is provided by the transformation view in operation. In the transformation view, a project is conceptualized as a transformation of inputs to outputs. To understand management is based on three theories: management-as-planning, the dispatching model and the thermostat model. The idea behind management as planning is that

management at the operation level is seen to consist of the creation, revision and the implementation of plans (Williamson, 2013).

This approach to management views a strong causal connection between the actions of management and the outcomes of the organization. The dispatching model assumes that the planned tasks can be executed by a notification of the start of the task to the executor. That is, you issue an order down the chain of command that someone has to start on a task, and that will be it; the worker will automatically without any hesitation or problem start working on it.

## **2.5 Conceptual framework**

There are several existing conceptual frameworks for assessing failure and recommendations for ICT systems. An evaluation was undertaken to determine which framework would be relevant to this research.

### **2.5.1 The ITPOSMO model**

The ITPOSMO model was envisaged by Heeks (2002). The ITPOSMO model seeks to explain the high rates of failures of information systems in developing countries. This model assumes the designers of IS are remote which means their contextual inscriptions are liable to be significantly different from user actuality. It assumes the designers come from developed countries or have been trained in developed countries and their knowledge of the local circumstances is at variance with the local reality. This model can be used in explaining some of the reasons as to why implementation of ICT in Africa fails. According to Heeks (2002), local improvisation is done to reduce actuality-reality gaps.

This can be through hybrids that recognize local capacities and improve success rates. However, Heeks notes that schemes to develop these hybrids in the Developing Countries are virtually nonexistent thus hampering improvisation. Participative approaches to implementation e.g. group working and end-user involvement; have to be carefully considered since most have been developed for the industrialized countries. Examples of how these participative IS techniques were a failure, are the case of Mexico's General Hospital and an end user development initiative for health IS in South Africa (Heeks 2002). The implementations failed because of the large gap between design assumptions and requirements and actuality of organizations into which ICT was introduced.

The conclusion drawn is that these implementations failed because there was too large a gap between the design assumptions and requirements of those techniques and the actuality of organizations into which they were introduced and not necessarily because of participative design is necessarily wrong.

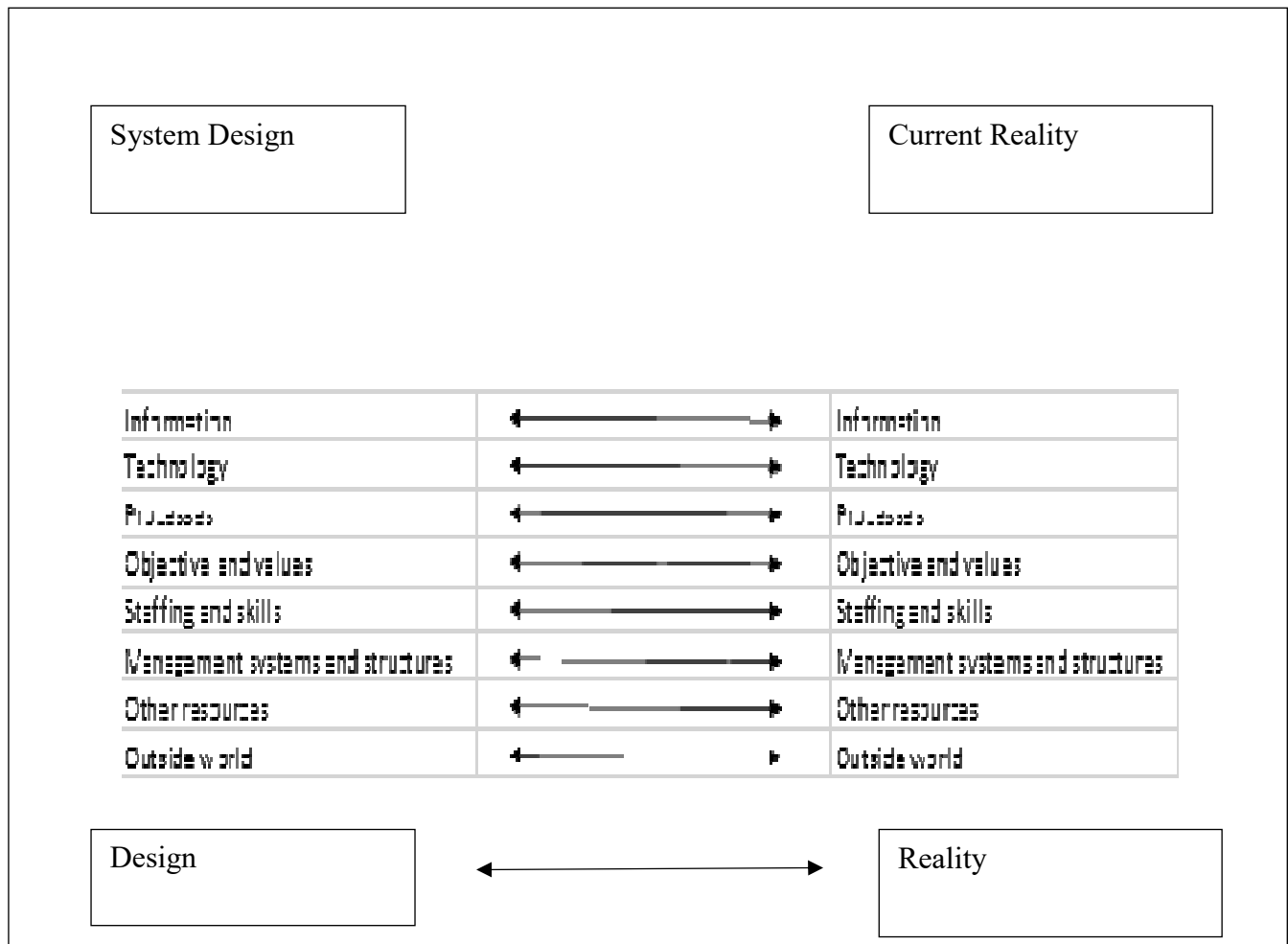


Figure 2.3.1: ITPOSMO Model (Heeks, 2003)

### 2.5.2 Factor Model (Heeks, 2004)

The Factor Model by Heeks (2004) identifies a set of success/failure factors: external pressure, internal political desire, overall vision and strategy, project management, change management, politics, design, competencies and technological infrastructure. Heeks (2004)

states that the presence or absence of these factors determine success or failure of the e-Government implementation in developing countries.

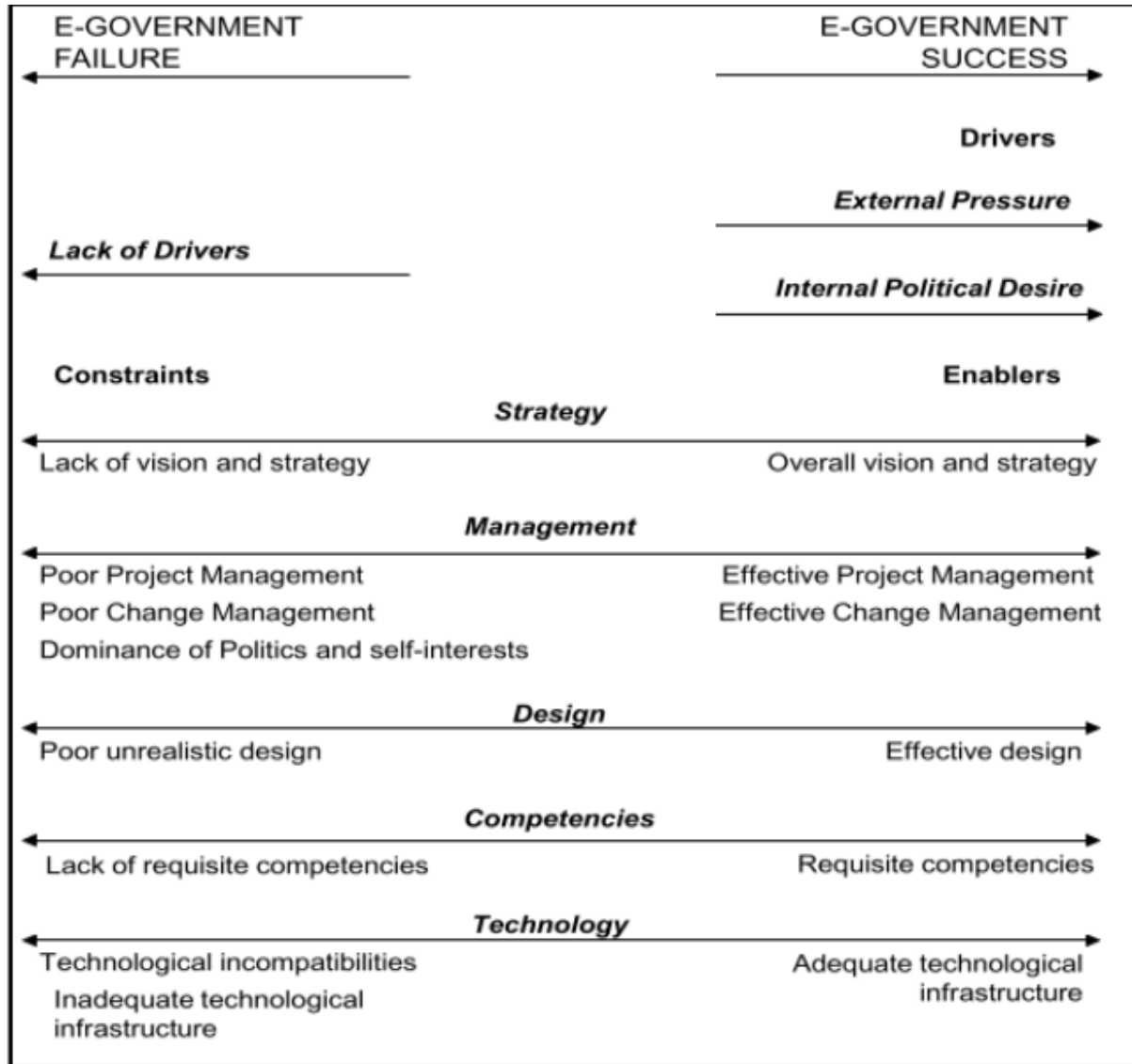


Figure 2.3.2: Factor Model (Heeks, 2004)

## 2.6 A descriptive conceptual framework for developing countries context

This model which was developed by David Gichoya (2005) seeks to identify the characteristic challenges, which make ICT implementation in Kenya government fail to succeed. The model illustrates the key factors in ICT implementation in government. The input variables are categorized into factors for success (drivers and enablers), and factors for failure (barriers and inhibitors). The factors for failure are those occurrences that constraint

proper/smooth implementation of ICT projects in government. These can either be barriers or inhibitors. Barriers can be considered as those occurrences that hinder ICT implementation.

The barriers are as listed below.

- Finance
- Infrastructure
- Attitudes
- Coordination
- Strategy
- Skills

Inhibitors do not necessarily prevent the implementation of ICT projects but they do prevent advancement and restrict successful implementation and sustainability. The inhibitors are as listed below.

- User needs
- Technology
- Coordination
- ICT policy
- Transfer of ICT idolizers
- Donor push



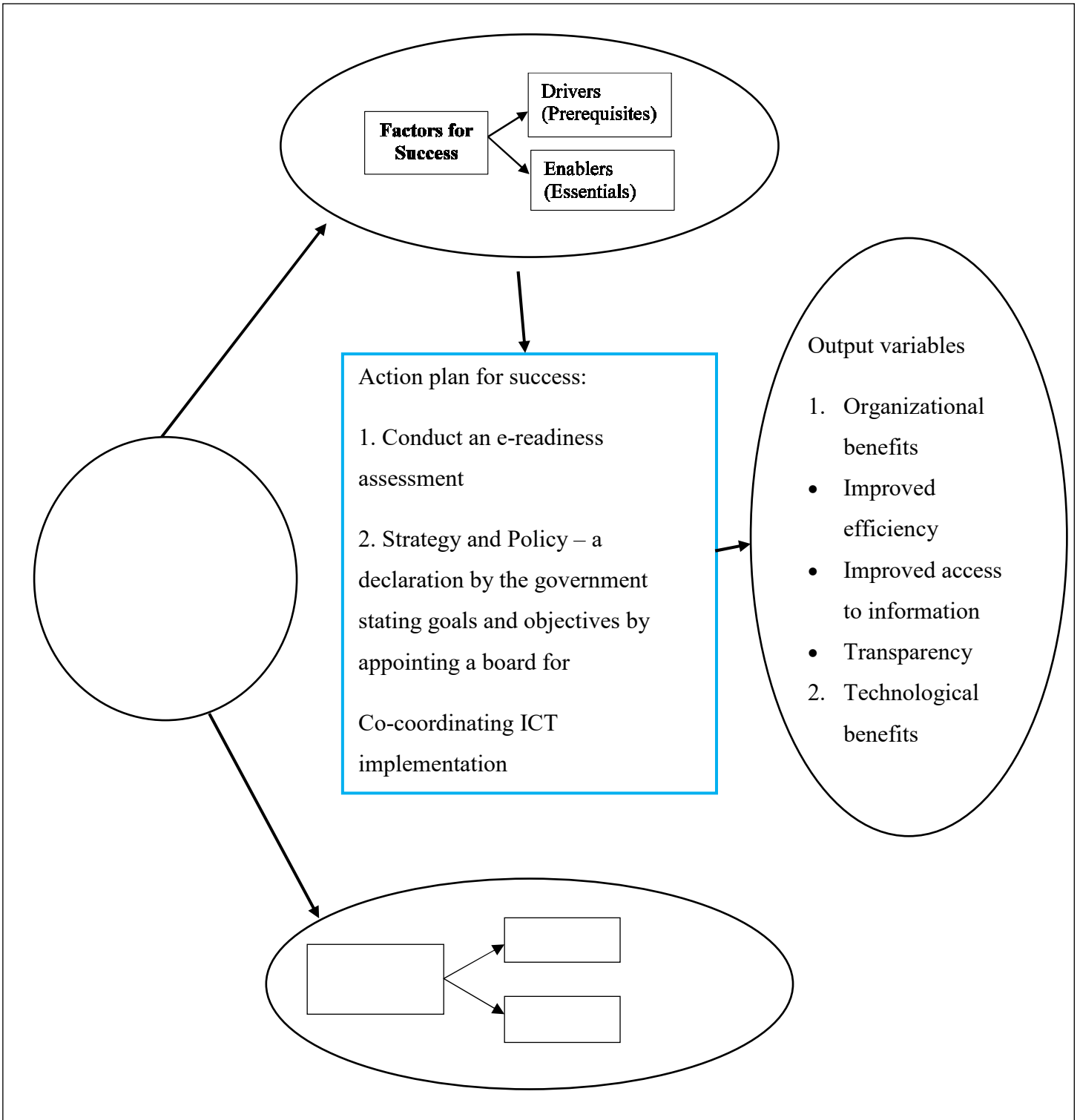


Figure 2.3.3: Descriptive framework for ICT success or Failure (David Gichoya, 2005)

### **2.6.1 Pinto and Slevin Critical success factors in projects**

Few scholars have been cited as frequently as Pinto, Slevin, and Prescott for their contributions to project success and related critical success factors (CSF) in the 1980s. Studies since then built on their articles to broaden and refine our understanding of the topic. The purpose of this paper is to discuss the reasons for the impact of these seminal contributions and how the topic of project success continues to evolve. Pinto and Slevin (1987) built their framework based on ten factors which are: project mission, top management support, project schedule/plan, client consultation, personnel technical tasks, communication to recruitment/selection and training.

The first factor that was developed was related to the underlying purpose for the implementation and was classified Project Mission. Project Mission has been found to refer to the condition where the goals of the project are clear and understood, not only by the project team involved but by the other departments in the organization Bardach (1977).

The second factor discerned was that of Top Management Support. As noted by Schultz and Slevin (1975), management support for projects, or indeed for any implementation, has long been considered of great importance in distinguishing between their ultimate success and failure. Beck (1983) sees project management as not only dependent on top management for authority, direction, and support, but as ultimately the conduit for implementing top management's plans, or goals, for the organization.

Top Management Support refers to both the nature and amount of support the project manager can expect from management both for himself as leader and for the project. Management's support of the project may involve aspects such as allocation of sufficient resources (financial, manpower, time, etc.) as well as the project manager's confidence in their support in the event of crises.

The third factor to be classified was that of Project Schedule Plans. Project schedule refers to the importance of developing a detailed plan of the required stages of the implementation process. Ginzberg (1979) has drawn parallels between the stages of the implementation process and the Lewin (1952) model of Unfreezing-Moving-Freezing, viewing planning and scheduling as the first step in the "Moving" stage. Further, the schedule should include a

satisfactory measurement system as a way of judging actual performance against budget and time allowances.

The fourth factor that was determined is labeled Client Consultation. The "client" is referred to here as anyone who will ultimately be making use of the result of the project, as either a customer outside the company or a department within the organization. The need for client consultation has been found to be increasingly important in attempting to successfully implement a project. Indeed, Manley (1975) found that the degree to which clients are personally involved in the implementation process will cause great variation in their support for that project.

The fifth factor was concerned with Personnel issues, including recruitment, selection, and training. An important, but often overlooked, aspect of the implementation process concerns the nature of the personnel involved. In many situations, personnel for the project team are chosen with less than-full regard for the skills necessary to actively contribute to implementation success. Further, it is important to determine whether project management has built sufficient commitment toward project success on the part of team members.

The sixth factor was labeled Technical Tasks. Technical Tasks refers to the necessity of not only having the necessary personnel for the implementation team, but ensuring that they possess the necessary technical skills and have adequate technology to perform their tasks. Steven Alter (1979), writing on implementation risk analysis, identifies two of the eight risk factors as being caused by technical incompatibility, the user's unfamiliarity with the systems or technology, and cost ineffectiveness.

The seventh factor Client Acceptance refers to the final stage in the implementation process, at which time the ultimate efficacy of the project is to be determined. Too often project managers make the mistake of believing that if they handle the other stages of the implementation process well, the client (either internal or external to the organization) will accept the resulting project. As an implementation strategy, Lucas (1979) discusses the importance of user participation in the early stages of system development as a way of improving the likelihood of later acceptance.

The eighth factor to be considered is that of Monitoring and Feedback. Monitoring and Feedback refer to the project control processes by which at each stage of the project implementation, key personnel receive feedback on how the project is comparing to initial

projections. Making allowances for adequate monitoring and feedback mechanisms gives the project manager the ability to anticipate problems, to oversee corrective measures, and to ensure that no deficiencies are overlooked.

The ninth factor was that of Communication. The need for adequate communication channels is extremely important in creating an atmosphere for successful project implementation. Communication is not only essential within the project team itself, but between the team and the rest of the organization as well as with the client.

The tenth and final factor to emerge from classification of the model is Trouble Shooting. Regardless of how carefully the project was initially planned, it is impossible to foresee every trouble area or problem that could possibly arise. As a result, it is important that the project manager make adequate initial arrangements for "troubleshooting" mechanisms to be included in the implementation plan. Such mechanisms make it easier not only to react to problems as they arise, but to foresee and possibly forestall potential trouble areas in the implementation process.

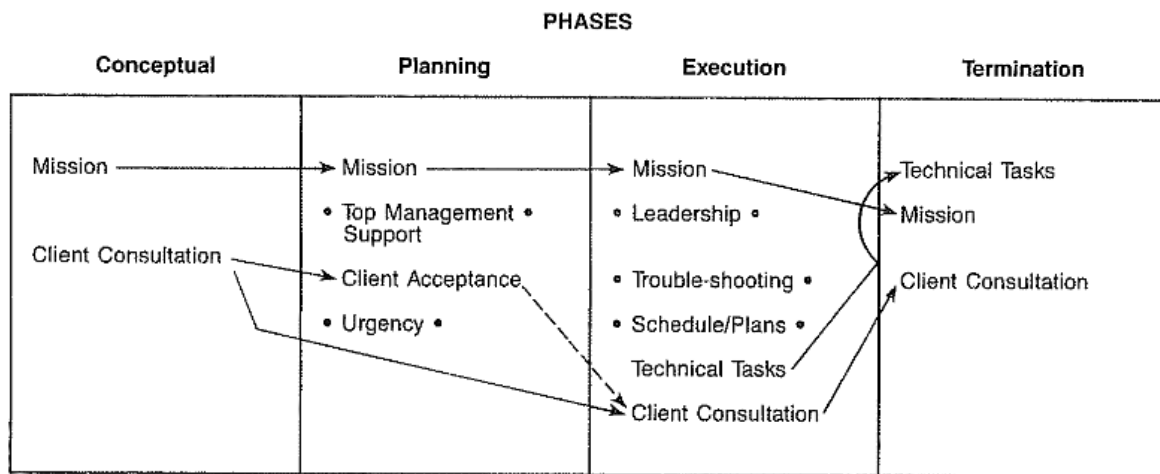


Figure 2.3.4: Pinto and Slevin Critical success factors in projects framework

### **2.6.2 Belassi and Tukel Belassi**

Belassi and Tukel Belassi (1996) grouped the factors into four areas:

1. Factors related to the project
2. Factors related to the project manager and the team members
3. Factors related to the organization
4. Factors related to the external environment

A factor in one group can influence a factor in another group, and a combination of several factors from various groups might lead to project success or failure. For instance, top management support is a factor related to an organization which can be affected by the general state of the economy. Similarly, the uniqueness of project activities can affect the project manager's competence on the job. Lack of top management support together with the project manager's lack of competence on the job might lead to project failure. One of the advantages of grouping the factors in this fashion is that although it might be difficult to identify the success factors specific to certain industries or organizations, it might be easier to identify whether the success or failure is related to the project manager and/or to the project and/or to external factors.

The framework not only brings advantages by grouping critical factors, but also helps project managers understand the intra-relationships between the factors in different groups. This will help project managers evaluate and monitor their projects more accurately. Similarly, project managers' competence is a critical factor that affects project planning, scheduling and communication. Thus, effective planning, scheduling and communication are really not factors but immediate effects of factors related to a project manager, such as his managerial skills, competence and his technical background. Using this framework, project managers can easily observe these cause- effect relationships.

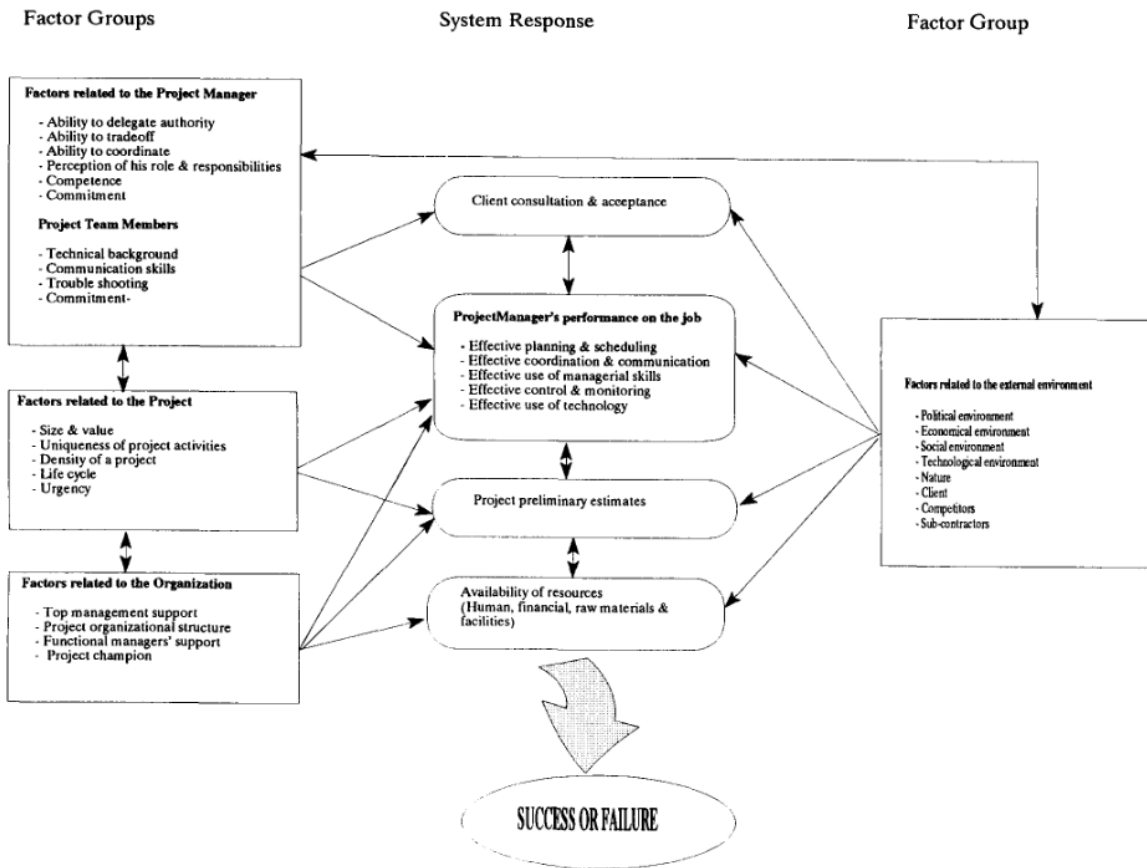


Figure 2.3.6 Belassi and Tukul Belassi Framework

## **2.6 Empirical Review of the Study**

Empirical studies are researches that derive their data by means of direct observation or experiment to answer a question or hypothesis (Sekaran, 2006). The study has to put forward different perspectives and views of functionalists and positivists. Sufficient background information should be presented for readers to understand and evaluate the results of the present study. This section explores the previous empirical studies relating to project performance and its determinants. This section discusses the empirical literature on top management support, project culture, project scheduling, project team commitment and project performance.

## **2.7 Critique of the Existing Literature**

Top management support is one of the principal factors for achieving the project success. It determines the successful or failure of a project at any stage even though the project manager has excellent skills (Meredith & Mantel, 2010). Top management support results in availability of project resources. Top management support has however been discussed as single paradigm which promotes project success (Young & Jordan, 2008). It is not the only valuable template for project success, there are other factors which when integrated promote project success.

Moreover, it requires more than a project managers' transformational leadership to have successful projects (Yang et al., 2013). Nevertheless, not all project managers have transformational leadership skills. Some top management staff can also intentionally sabotage a project by not providing the required resources leading to failure. This can also lead to poor project plans and delays (Lysons & Farrington, 2006). Project leaders should be all rounded in both technical capabilities and management skills (Morgan, 2012).

## **2.8 Research Gaps**

Project performance is the most important confirmation that project funds have been used well to deliver the project goals. However, many projects still fail to perform and realize expected benefits (Baily et al 2012). Across the world, project failures have often been reported more than project success (Zwikael & Smyrk, 2012). Standish Group (2009) published that in the USA, only 32% of ICT projects succeed, 44% were challenged and 24%

of ICT projects failed. Stewart (2003) further claimed that only 25% of ICT projects remain successful. Moreover, in developing countries, project failure is more alarming (Haughey, 2010).

In Kenya, about 30% of non-governmental organizations experience failure in their projects (Mathew, 2011). Kerzner (2009) observed that projects may fail to achieve targets and objectives due to low morale, de-motivation, poorly managed project team relations and commitment. Thus, transformational top management support and behaviors is a very critical factor for better performance of various projects (Yang *et al.*, 2011). Jason (2016) argues that for every project to be successful, senior management support is required to mobilize resources for project goals. Carson (2009), the level of management support is mostly determined by management commitment. Well performing projects start with organizational culture, a vision of what to be achieved (Kraeger, 2011). Costs, time and quality parameters need to be specified and contracted for performance assessment (Johnson, Scholes & Willington, 2006). In Africa, many organizations have not yet managed to succeed in implementing projects within their scope (Phillip, 2007).

This study identified gaps in the literature it was noted that current literature on developing countries is deficient or lays little emphasis on:

- A lack of complete synthesis of variables
- A lack of empirical case studies on ICT infrastructural implementation
- A lack of literature on ICT implementation in developing countries
- Financing of ICT projects in developing countries
- Strategic alignment of ICT strategies with departmental, ministerial and national goals
- The political perspective
- The corruption perspective
- Constraints resulting from the donor perspective
- The knowledge management perspective



## 2.9 Evaluation criteria for choosing the conceptual Framework

Given that many conceptual frameworks capture the determinants of information communication technology it is paramount that one chose a conceptual framework that best suites the research.

No	Framework	Factors Identified that contribute to Project Success	Observation
1	ITPOSMO Model (Heeks, 2003)	Information Technology Processes Objectives and Values Staffing and Skills Management systems and structures Other resources Outside World	Investigates the gap between the design and reality
2	Factor Model (Heeks, 2004)	External pressure , Internal political desire  Overall vision and strategy ,Project management , Change Management  Politics , Design , Competencies ,  Technological infrastructure	Identified as both enablers and constraints
3	Descriptive framework for ICT success or Failure (David Gichoya, 2005)	User needs  Technology  Coordination  ICT policy  Transfer of ICT idolizers  Donor push	Organizational and Technological benefits are regarded as the dependent variable
4	Pinto and Slevin Critical success	Project Mission	The ten factors have been linked together in an

	factors in projects (Pinto and Slevin , 1987)	<p>Top Management Support</p> <p>Project Schedule Plans</p> <p>Client Consultation</p> <p>Personnel issues</p> <p>Technical Tasks</p> <p>Client Acceptance</p> <p>Monitoring and Feedback</p> <p>Communication</p> <p>Trouble Shooting</p>	interdependent framework
5	Research Conceptual Framework (Abdulaziz, Almajed and Pam Mayhew, 2015)	<p>Top Management support and commitment</p> <p>Communication Management</p> <p>Project Team Competency</p> <p>Stakeholders Management</p> <p>Partners and Supplier Management</p> <p>Project Management</p> <p>Strategic Planning</p> <p>Training and Education</p> <p>Organizational Culture</p>	<p>Uses Organizational factor as a moderator</p> <p>Project Success as a dependent variable</p>
6	Belassi and Tukel (1996)	<p>Top management support</p> <p>Project organizational structure</p> <p>Functional managers' support</p> <p>Project champion</p> <p>Project manager</p>	Grouped into four: project; project manager organization; and external environment.

		Project team members	
--	--	----------------------	--

Table 2.9 Identified conceptual frameworks applicable to the study of determinants of ICT project performance in Africa

Evaluation Criteria	ITPOSMO Model	Descriptive framework for ICT success or Failure	Factor Model	CSF in projects	Research Conceptual Framework	Belassi and Tukel
Year	2003	2005	2004	1987	2015	1996
Author	Heeks	David Gichoya	Heeks	Pinto and Slevin	Abdulaziz, Almajed and Pam Mayhew	Belassi and Tukel
Factors matching Research objectives	Staffing and Skills	Coordination	Project management Change Management	Top Management Support Project Schedule Plans	Top Management support and commitment Project Management Organizational Culture Project Success	Top management support
Legitimacy	Yes. Successful hypothesis testing published	Yes. Successful hypothesis testing published	Yes. Successful hypothesis testing published	Yes. Successful hypothesis testing published	Yes. Successful hypothesis testing published	Yes. Successful hypothesis testing published

Generalizability	No mainly applicable to ICT related projects	Yes	Mainly applicable to E-Government	Yes	Yes	Yes
Diagrammatic representation	Yes	Yes	Yes	Yes	Yes	Yes
Fecundity	No	No	No	Yes	Yes	No

Table 2.9.1 Evaluation of the most-cited frameworks applicable to the study of determinants of ICT project performance in Africa

The research conceptual framework by Abdulaziz, Almajed and Pam Mayhew which was established and tested in 2015 is the most relevant in this study given that all the factors identified closely matches with the research objectives and successful hypothesis was tested on the same.

## 2.10 Research Conceptual Framework

The conceptual framework was developed in the United Kingdom and tested in Saudi Arabia by Abdulaziz, Almajed and Pam Mayhew in 2015. The aim of the IT project success conceptual framework development was to help achieve the research aim, which was to investigate the impact/influence of critical success factors on IT projects success within Saudi Arabian public organizations from the CIOs perspective.

The conceptual framework is divided into three subsections:

1. Independent variables (eight factors)

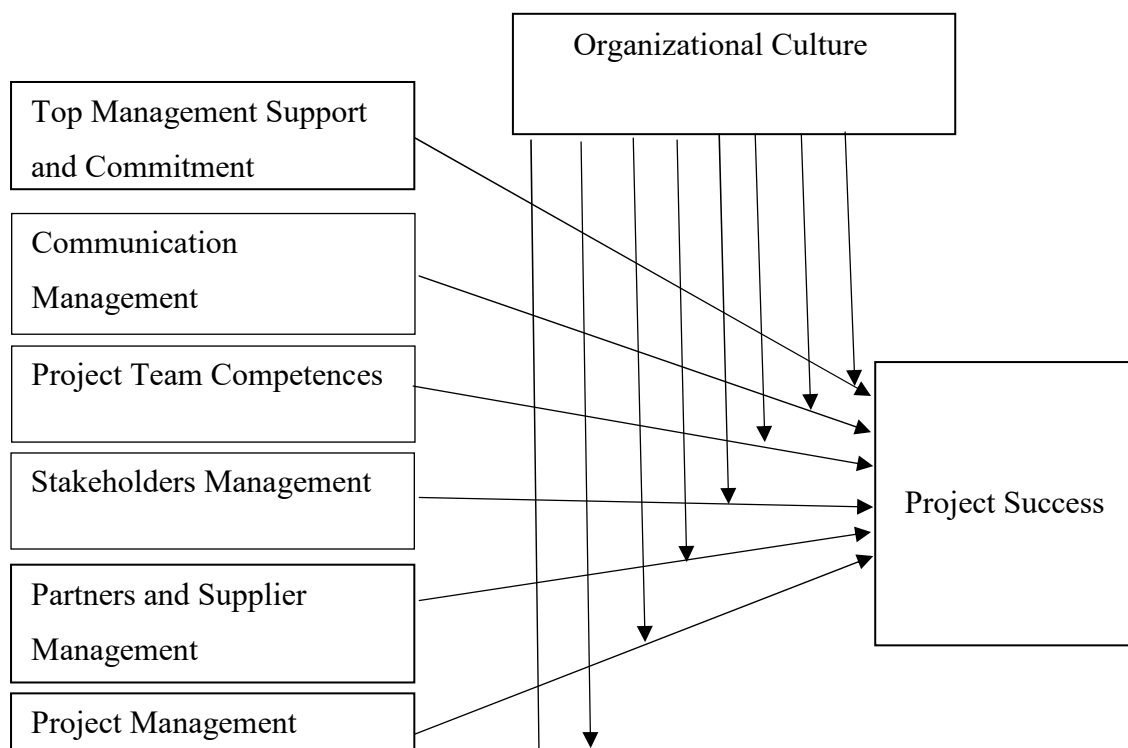
- Top Management Support
- Communication Management
- Project Team Competencies
- Stakeholder Management
- Partner and Supplier Management
- Project Management
- Strategic Planning
- Training and Education
- Organizational Culture

2. Moderator

- Organizational Culture

3. Dependent variable

- Project Success



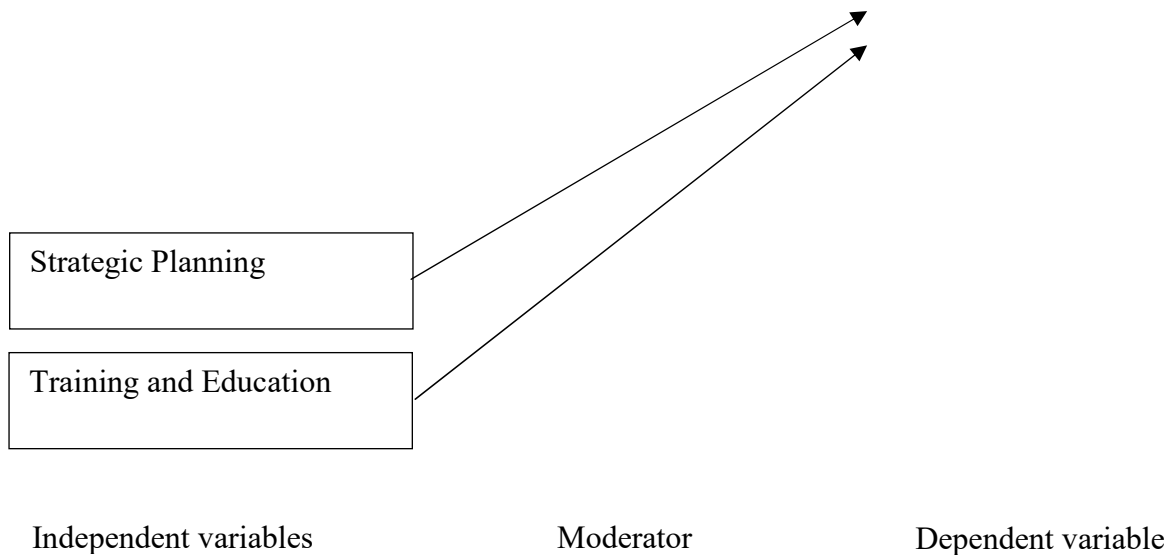


Figure 2.3.5: Research Conceptual Framework

Many researchers identified “top management support and commitment” as one of the crucial factors in IT project success, and it is the most cited CSF in the literature (Nah et al (2007), Esteves et al (2001), Fortune(2006), Somers(2004),Dezdar(2012)). Top management support and commitment refers to top management’s willingness to champion projects within the organization and to allocate the resources required for IT projects success Holland (1999). However, the amount of resources allocated depends on the attitude of the top management to the project, and the commitment of all the employees in the enterprise to the project might be reinforced by top management sponsorship and support.

Communication management is important in IT project success, and therefore, IT project goals and expectations should be communicated with all the parties affected by the project, and open communication can leverage successes and facilitate enterprise-wide learning Wee (2000). Communication includes the announcement of project progress to the rest of the organization Holland (1999). In order to keep users informed about the projects progress, communication means such as regular e-mail updates, newsletters, bulletins, and weekly meetings can be employed, and this communication needs to be two-way to avoid any misunderstanding occurring during the collection of the projects requirements Nah (2006).

Project Team Competency IT projects impact the most functional departments in any organization, therefore, the importance of project teams has been emphasized in the IT project literature Nah (2006). The IT project team should recruit the best individuals in the organization Buckhout (1999). Furthermore, research has shown that companies demonstrated their commitment to IT projects by assigning the best people to them Ross (1999).

Stakeholder Management PMI (2013) defined stakeholders as “persons or organizations, who are actively involved in the project or whose interests may be positively or negatively affected by the performance or completion of the project”. The project, its deliverables, and the project team members can be influenced by stakeholders. In order to determine the project requirements, the project management team must identify both internal and external stakeholders. Identifying stakeholders and understanding their relative degree of influence on a project is critical. Even though stakeholders often have very different or conflicting objectives, an important role of the project manager is to manage their expectations (PMI (2013).

Partners and Suppliers Management It is important for the IT vendor's staff to be knowledgeable about both business processes and ERP functions. The vendor should be carefully selected, since vendor support plays a crucial role in shaping the ultimate outcome of implementation Zhang (2003). Project success is found to be positively associated with fit and compatibility with the IT vendor employed Kansal (2007). Price has no meaning without a measure of the quality being purchased, and without adequate measures of quality, business drifts to the lowest bidder, with low quality and high costs being the inevitable result Deming (2000). Organizations should select their suppliers on the basis of quality rather than solely on price, so the supplier becomes an extension of the buyer’s organization to a certain extent AlShitri (2008).

Project Management Project management is defined as “the application of knowledge, skills, tools, and techniques to project activities to meet project requirements” PMI (2013), and it is accomplished through the application and integration of the project management processes of initiation, planning, execution, monitoring, controlling and closing PMI (2013). Project management, which refers to determining timetables, milestones, equipment,

workforce, and budgets, is vital in the complex environment of IT projects Dezdar (2012). Successful IT project implementation requires excellent project management which includes a clear definition of objectives, development of both a work plan and a resource plan, and careful tracking of project progress Zhang et al (2005).

Strategic IT planning establishes a clear vision and measurable objectives for the use of IT in an organization, prescribes strategies to achieve this vision with the knowledge of the available IT capabilities and opportunities, provides measures for success and possibly suggests concrete initiatives for implementing the developed strategies Ojo (2009). It improves key stakeholders understanding of IT opportunities and limitations, assesses current performance, identifies human resource requirements, and clarifies the level of investment required. Strategic IT planning generally serves as a mechanism for managing and directing all IT resources in line with organizational strategies and priorities Ojo (2009).

**Training and Education** The need to include training as a critical part of IT project implementation has been referenced by a substantial number of citations. Another vital consideration is to have a plan for training facilities Kumar (2002). The need for training in general has been mentioned by most researchers. However, some researchers have specifically mentioned the need for project team training Kumar (2002) and others have focused on user training Robey (2002). Finney and Corbett suggested that the training should encompass the development of IT skills Finney (2007).

**Organizational Culture (The Moderator)** Johnson, Scholes and Whittington Johnson (2008), defined the organizational culture paradigm as “a set of assumptions held relatively in common and taken for granted in an organization”. It includes collective experience, values, beliefs, and behavioral norms. These assumptions exist at the organizational level, and they have worked well enough to be considered valid. An organizational culture that promotes learning and innovation can be especially influential on the success or failure of an organizations IT innovation or strategy. Scott and Vessey (2000) provide case study evidence to show that organizational culture can impact on the success or failure of IT project such as ERP.

## **2.11 Operationalization of the chosen Conceptual Framework**



The determinants and project success criteria instruments were structured into a questionnaire. The logic of the questions in these instruments was descriptive. These instruments requested the respondents' perceptions of the determinants and project success criteria. All the questions made use of a five-point Likert-type scale with anchors ranging from "strongly agree" to "strongly disagree"; each question states an opinion and obtains the respondents' degree of agreement or disagreement. This scale provides answers in the form of coded data that are comparable and can be readily manipulated.

The questionnaire was divided into four sections as follows: Section one sought to gather information about the characteristics of the respondents and their background (nationality, gender, age, educational level, field of study, years of experience, managerial level). Section two contained questions about the organizational and IT characteristics (organization's category, organization size, IT department size, IT projects' yearly budget, existence of formal project management methodology/standard information, existence of project management office (PMO), systems development). Section three covered the project success criteria. Section four covered the determinants (top management support and commitment, strategic planning, communication management, project management, project team competency, stakeholder's management, Partners and supplier's management, training and education); most of these questions were tested by Nah et al. (2007), Dezdar and Ainin (2012) and others. The Items used for measuring the determinants can be seen below.

Table 2.10: Items used for measuring top management support and commitment

<b>Item</b>	<b>Source</b>
Sufficient incentive is provided by top management	(Dezdar and Ainin, 2012, Nah et al., 2007)
IT projects are viewed as a strategic decision by top management	
There is sufficient top management commitment	
Top management is actively supporting IT projects.	
IT projects are received explicit identification from top management as a critical priority	
Top management encourages and participates in IT projects	(Altameem, 2007, Dezdar and Ainin, 2012, Nah et al., 2007)
Top management commits and shares long term	

policies with others	
Top management support allocates enough budget and resources	(Dezdar and Ainin, 2012, Nah et al., 2007)
Top management creates the environment for IT projects to succeed	(Bryde, 2008, Dezdar and Ainin, 2012, Nah et al., 2007)

Table 2.10.1 Items used for measuring strategic planning

Item	Source
Our IT capabilities are constantly reviewed against strategic goals.	(Stratman and Roth, 2007)
IT plans are redesigned as required to meet evolving conditions.	
Strategic IT planning is a continuous process.	
Written guidelines exist to structure strategic IT planning in our organization.	
Top management is involved in strategic IT planning	
Strategic IT planning includes inputs from all functional areas	

Table 2.10.2 Items used for measuring communication management

Item	Source
There are effective communications between project team members and users.	(Dezdar and Ainin, 2012, Nah et al., 2007)
There are effective communications amongst functional departments.	
There are effective communications to get the users' requirements and comments.	
There are enough communication channels (presentations, newsletter, etc.) to inform users about the objectives of the IT projects.	
IT projects progress are communicated amongst stakeholders	
All stakeholders and team members willingly keep each other informed.	

Table 2.10.3 Items used for measuring project management

Item	Source
Scope of each IT project is clearly established.	(Bradley, 2008, Dezdar and Ainin, 2012, Nah et al., 2007, Zhang et al.,

	2003)
A detailed project plan (i.e., what activities to cover at what stage) with measurable results is provided for each IT project	
The responsibility for all parts of each IT project is assigned.	
The activities across all affected parties are coordinated properly for each IT project.	
There is a formal management process to monitor suppliers' activities.	
Each IT project progress is reviewed on a periodic basis.	

Table 2.10.4 Items used for measuring project team competences

Item	Source
Each IT project has a well experienced project manager who is dedicated to the project.	(Bradley, 2008, Dezdar and Ainin, 2012, Nah et al., 2007, Zhang et al., 2003)
A variety of cross-functional team members are selected	
The people selected for each IT project team have the best business and technical knowledge.	
Each IT project team is empowered to make decisions relating to the project.	
Each IT project team is working on the project full-time as their only priority.	

Table 2.10.5 Items used for measuring stakeholder's management

Item	Source
Structured stakeholder analysis is conducted on a regular basis to understand their expectations, identify synergies and risks.	(EFQM-MultiProject, 2010)
Stakeholders' relationships are managed along and across IT projects	
IT projects requirements are thoroughly understood, they reflect stakeholder needs and the capability of the organization.	
Stakeholders are recognized for their contribution to efficient IT projects	
The roles and responsibilities of all stakeholders are identified	

Table 2.10.6 Items used for measuring partners and supplier's management

Item	Source
The partners & suppliers communicate well with our organisation.	(Dezdar, 2011, Ifinedo, 2008, Muscatello and Chen, 2008, Wang et al., 2007, Zhang et al., 2005), (AlShitri,

	2008, Dezdar, 2011, Huang et al., 2004, Uzoka et al., 2008)
The partners & suppliers personnel have enough experience for implementing IT projects	
The partners & suppliers provide quality services.	
The training offered by the partners & suppliers is adequate to increase the user's proficiency in each IT project usage.	
The partners & suppliers provide suitable formal documents (user manual, operation guide, etc.) required for each IT project.	
IT product/service quality is regarded as the most important factor in selecting suppliers.	(AlShitri, 2008, Dezdar, 2011)
Long-term cooperative relations with partners and suppliers are established	
Detailed information regarding partners and supplier's performance is maintained	

Table 2.10.7 Items used for measuring training and education

<b>Item</b>	<b>Source</b>
Specific IT skills training is given to team members in all IT projects.	(AlShitri, 2008, Dezdar, 2012)
Specific user training needs were identified early in the implementation of each IT project	(Stratman and Roth, 2007)
A formal training program has been developed to meet the requirements of each IT project users	
Training materials have been customized for each specific job	
Employees are tracked to ensure that they have received the appropriate training.	
Our organization provides regular training sessions	(Altameem, 2007)
The resources for education and training have been put in place	
Education and training are encouraged and supported	

Table 2.10.8 Items used for measuring dependent project success

<b>Item</b>	<b>Source</b>
IT projects are completed on-time.	(Atkinson, 1999, Baccarini, 1999, Johnson, 1999, Kerzner, 2009, Lim and Mohamed, 1999, Marchewka, 2014, Might and Fischer, 1985, Morris and Hough, 1987, Pinto and Slevin, 1988, Turner, 1999, Van Der Westhuizen and Fitzgerald, 2005, Wateridge, 1998)
IT projects are completed on-budget.	(Atkinson, 1999, Baccarini, 1999, Johnson, 1999, Kerzner, 2009, Lim and Mohamed, 1999, Marchewka, 2014, Might and

	Fischer, 1985, Morris and Hough, 1987, Pinto and Slevin, 1988, Turner, 1999, Van Der Westhuizen and Fitzgerald, 2005, Wateridge, 1998)
IT projects are completed with all features and functions as initially specified.	(Atkinson, 1999, Baccarini, 1999, Delone and McLean, 2003, Johnson, 1999, Kerzner, 2009, Lim and Mohamed, 1999, Marchewka, 2014, Might and Fischer, 1985, Morris and Hough, 1987, Pinto and Slevin, 1988, Turner, 1999, Van Der Westhuizen and Fitzgerald, 2005, Wateridge, 1998)
IT projects meet the needs of the project stakeholders.	(Atkinson, 1999, Baccarini, 1999, Lim and Mohamed, 1999, Marchewka, 2014, Pinto and Slevin, 1988, Turner, 1999, Van Der Westhuizen and Fitzgerald, 2005, Wateridge, 1998)
IT project achieve its business goals and purpose.	(Atkinson, 1999, Baccarini, 1999, Delone and McLean, 2003, Lim and Mohamed, 1999, Marchewka, 2014, Morris and Hough, 1987, Turner, 1999, Van Der Westhuizen and Fitzgerald, 2005, Wateridge, 1998)
End products of IT projects are used.	(Delone and McLean, 2003, Pinto and Slevin, 1988, Van Der Westhuizen and Fitzgerald, 2005, Wateridge, 1998)

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.0 Introduction**

This chapter dealt with the description of the methods applied in carrying out the research study and covered: research design, the target population, sampling frame, sample and sampling technique, data collection and instruments.

#### **3.2 Research Design**

According to Kombo et al. (2002), research design is the scheme; outline or plan that is used to generate answers to research problems. This research adopted a descriptive research design. According to Kothari (2004), descriptive design allows the researcher to describe and record, analyze and report conditions that exist. The research study adopted a quantitative approach since it reliable, uses statistics to generalize a finding and is less detailed than qualitative data and may miss a desired response from the participant. Data was collected to study the determinants of project performance. A survey design was preferred because it facilitates the collection of a considerable amount of data quickly, efficiently and accurately (Oso & Onen, 2005).

Mugenda and Mugenda (2003) defined survey research as an attempt to collect data from members of a population in order to determine the current status of the population with respect to one or more variables This research strategy was preferred because it permitted the collection of data through questionnaires administered to a sample. The data collected by this design was used to suggest reasons for particular relationships between independent and dependent variables (Saunders & Thornhill, 2007).

#### **3.3 Target Population**

Population according to Kothari, (2013) is the universe of interest. It is the total number of subjects or the total environment of interest to the researcher. According to Castillo (2009), a research population is generally a large collection of individuals or objects that is the main

focus of a scientific query. This study targeted 304 people involved in different projects in different capacities. The senior managers, managers and project managers are from Indra and the Client customer management team, Client Billing End Users and Client IT System Support are from the different client's systems have been implemented at. They comprised of 85 Client customer management team, 53 Client Billing End Users, and 49 Client IT System Support, 36 Project Managers, 42 Managers and 39 Senior Managers.

Table 3.1: Target Population

Categories	Total Population	Percentage %
Senior Managers	39	6%
Managers	42	6%
Project Managers	36	9%
Client IT System Support	49	18%
Client Billing End Users	53	22%
Client customer management team	85	40%
Total	304	100%

### 3.4 Sampling Frame

A sampling frame is a list of all the items where a representative sample is drawn for the purpose of research. It must be large that it allows the researcher to feel confident about the sample representativeness and allows the researcher to make inferences of the sampling frame and the entire population (Silverman 2005). The sample frame for this study had a total of 304 employees who have worked in different projects in different capacities who included Client customer management team, Client Billing End Users, and Client IT System Support, Project Managers, Managers and Senior Managers. The distribution of the employees is as shown in table 3.1.

### 3.5 Sample and Sampling Technique

A sample size of 105 (34.5% of target population) respondents was randomly selected from the target population of 304 respondents. This sample size conforms to Mugenda and Mugenda (2003) who contend that a sample size should be at least 30% of the population. A simple proportional formula ( $P \times n/N$ ); where P is the population, was used to select the respondents per strata for the interviews and questionnaire administration.

The study employed stratified random sampling method to draw respondents from the target population at all levels of management. Bryman and Bell (2007) have pointed out that stratified sampling “ensures that the resulting sample is distributed in the same way as the population in terms of the stratifying criterion”. Stratified sampling is a good approach and method when there is a good statistical database available. It gives flexibility to the researcher to make a decision on identification and allocation of the units for the strata. It also gives possibilities to use and make more than just one stratifying criterion (Bryman & Bell 2007).

**Table 3.2: Sample Size Distribution**

Categories	Total Population	Sample Size
Senior Managers	39	6
Managers	42	6
Project Managers	36	9
Client IT System Support	49	19
Client Billing End Users	53	23
Client customer management team	85	42
Total	304	105



### **3.6 Data Collection Instruments**

According to Kothari (2004), primary data are those that are collected afresh and for the first time and thus happen to be original in character. Secondary data on the other hand are those which have already been collected by someone else and which have already been passed through the statistical process. Secondary data is that which is derived from the work or opinions of other researchers (Newman, 2006). The researcher used a structured questionnaire to collect primary data from the respondents. The structured questions were used in an effort to conserve time and money as well as to facilitate an easier analysis as they are in immediate usable form. Questionnaires are research instruments used to collect information geared towards addressing specific objectives (Kombo *et al.*, 2002). The questionnaire items were scaled on a five point Likert scale.

### **3.7 Data Collection Procedure**

Data collection is defined by Kombo *et al.* (2002) as the process of gathering specific information aimed at proving or refuting some facts. The importance of data collection is to promote decision making and resource allocation that is based on solid evidence rather than on isolated occurrences, assumption, emotion, and politics and so on. In this research, the respondents were pre-contacted for briefing about the intention and purpose of the study through an introduction letter before the questionnaires were administered to the respondents. The respondents were then allowed to stay with the questionnaire so that they could answer all the questions properly. After one week, a follow up was done to collect the questionnaires for analysis. The questionnaires were also administered online with the help of technology by using Google Forms which helped reach a wider population, was faster and saved costs.

Secondary data was obtained from existing literature on ICT project failures, requirements, knowledge was reviewed for the purpose of establishing a ground of this research. The most relevant information therein was interpreted and applied in a way facilitating the structural content of this research study. In addition, journals, professional publications and information found on the internet proved to be very useful in providing a clear picture of the current information communication technology project environment. These consist of the sources of the information already collected by others and archived in some form. The secondary data sources used were mainly books, journals, professional publication (e.g. Computing,

Computer weekly, PMI, Projects in Controlled Environments 2 (PRINCE2), Research gate, the Financial Times FT-IT review, online journals and cases of system failures (Fielding, 2003). These provided the opportunity to learn about what were already well established and what remains to be learnt or investigated in addition to the references included herein.

### **3.8 Pilot Test**

A pilot test was conducted purposely to test for validity and reliability of the instrument. Validity test measures the ability of the research instruments to measure what it is intended to. Reliability test on the other hand looks at the ability of research instruments to give consistent results over and over again (Kombo et al., 2002). Mugenda and Mugenda, (2003) recommends a 10% of the sampled population to be considered as a sample size in a pilot study.

#### **3.8.1 Validity of Instrument**

Validity is the degree to which an instrument measures what is supposed to measure (Kothari, 2004). It is the degree to which results obtained from the analysis of the data actually represent the phenomenon under study. Validity was enhanced through appraisal of the tools and verification by the researcher. Furthermore, the questionnaire was subjected to pre-test to detect any deficiencies in it. Comments and suggestions made by the pre-test respondents were incorporated in order to address some insufficiencies or ambiguities in the questionnaire.

#### **3.8.2 Reliability of Instrument**

Mugenda & Mugenda (2003) defines reliability as a measure to which a research instrument yields consistent results or data after repeated trials. According to Kombo & Tromp (2006), reliability is the extent to which results are consistent overtime. This was done to test the questionnaire and check the consistency of the responses to the questions. However, reliability in research is affected by random errors, the pre-test of the questionnaire helped to identify the most likely source of errors and hence respond to them before the actual study. Test re-test method will be used to pilot the questionnaires. Reliability was calculated with

the help of the Statistical Package for Social Sciences (SPSS) version 23. A Cronbach Alpha correlation coefficient greater or equal to 0.7 was accepted (George and Mallery, 2003).

### 3.9 Data Analysis & Presentation

Data analysis consists of examining categorizing; tabulating or otherwise recombining the evidence to address the initial prepositions of the study (Savenye, Robinson, 2004). Further, data analysis refers to examining what has been collected in a survey or experiment and marking deductions and inferences (Kombo et al., 2002). It involves uncovering underlying structures, extracting important variable, detecting any anomalies and testing any underlying assumptions. It involves scrutinizing the acquired information and making inferences.

Organization is putting the collected data into some systematic form (Mugenda & Mugenda, 2003). The data collected was edited, collated to eliminate errors and coded for analysis using the Statistical Package for Social Sciences (SPSS version 23) tool. The coded data was analyzed quantitatively. Descriptive and inferential analyses (correlation) were conducted. Regression analysis was conducted to test the statistical significance of the effect of the independent variables on employee performance in project based organizations. The data analysis results were presented on frequency distribution tables. The regression model to be used is as shown below:

$$Y_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \varepsilon$$

Where,

$Y_i$  = Project success

$X_1$  = Top management support and Commitment

$X_2$  = Communication Management

$X_3$  = Stakeholder Management

$X_4$  = Partner and suppliers management

$X_5$  = Project Management

$X_6$  = Strategic Planning

$X_7$  = Training and Education

$X_8$  = Organizational Culture

$X_9$  = Project Team Competencies

$\alpha$  = Y intercept

$\epsilon$  = representing the error term,  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$  and  $\beta_9$  are the net changes in Y

Y is the function of  $X_i$  ( $i=1, 2, 3, 4, 5, 6, 7, 8, 9$ ) that is  $Y = f(X_i)$ .

## CHAPTER FOUR

### DATA FINDINGS, ANALYSIS AND DISCUSSIONS

#### 4.1 Introduction

The purpose of the study was to find out the determinants of information communication technology project performance in Africa. This chapter presents and discusses the research findings on demographic characteristics followed by descriptive, inferential and regression analyses respectively. All the study findings are accompanied by discussions and their implications.

#### 4.2 Response Rate

The study targeted a sample size of 105 participants out of which 94 were completely well filled, returned and consequently used for data analysis. This yielded a response rate of 89.5% as illustrated in Table 4.1. This response was considered adequate and representative of the target population. Cooper and Schindler (2003) argued that a response rate exceeding 30% of the total sample size provides enough data that can be used to generalize the characteristics of a study problem as expressed by the opinions of few respondents in the target population. This also meets the acceptable response rate of at least 40% (Sekaran, 2000).

**Table 4.1: Response Rate**

Response	Frequency	Percentage (%)
Returned	94	89.5%
Unreturned	11	10.5
Total	105	100.0

#### 4.3 Reliability Analysis

A pilot study was conducted to test the reliability and validity of the research instrument (questionnaire). A Sample size of 11 respondents, (10% of the study sample) as recommended by Mugenda and Mugenda (2003) was selected from a software development

company whose population had similar characteristics like those of Indra and administered with the questionnaires and the response rate was 100%. The Cronbach's Alpha Test was then conducted and all the nine variables gave Cronbach's Alpha values which were greater than 0.7 for all the variables as shown in Table 4.2. According to the findings, top management support and commitment had a reliability of ( $\alpha=0.823$ ), communication management had a reliability of ( $\alpha=0.876$ ), stakeholder management had a reliability of ( $\alpha=0.852$ ), partner and suppliers management had a reliability of ( $\alpha=0.789$ ), project management had a reliability of ( $\alpha=0.739$ ), strategic planning had a reliability of ( $\alpha=0.836$ ), training and education had a reliability of ( $\alpha=0.855$ ), organizational culture had a reliability of ( $\alpha=0.726$ ) and Project team competencies had a reliability of ( $\alpha=0.769$ ). According to George and Mallery (2003), Cronbach correlation coefficients greater or equal to 0.7 are acceptable. Field (2005) observes that a Cronbach's  $\alpha > 0.7$  implies that the instrument provides a good measure. These results of the pilot test were not included in the final data analysis of the study.

**Table 4.2: Reliability Analysis**

<b>Variable</b>	<b>Number of items</b>	<b>Cronbach's Alpha</b>
Top management support and Commitment	8	0.823
Communication Management	6	0.876
Stakeholder Management	5	0.852
Partner and suppliers management	7	0.789
Project Management	5	0.739
Strategic Planning	5	0.836
Training and Education	8	0.855
Organizational Culture	6	0.726
Project team competencies	5	0.769

#### 4.4 Demographic Characteristics of the Respondents

The study found it crucial to ascertain the demographic information of the participants since it plays a great role in determining the nature of information provided in terms of accuracy. The analysis relied on the information of the participants to classify the different results according to their knowledge and responses. The demographic data consisted of age, gender, age categories, and academic qualifications, position held and working experience within projects

##### 4.4.1 Gender of the Participants

The study established that there were more male participants (56.4%) while the female participants (43.6%) as illustrated in Table 4.3. This implies that more men than women employees participated in this study.

**Table 4.3: Gender Distribution of the Respondents**

Gender	Frequency	Percent (%)
Male	53	56.4
Female	41	43.6
Total	94	100.0

##### 4.4.2 Age of the Participants

The study sought to determine the age categories of the participants and from the findings in Table 4.4, majority (41.5%) were aged 26 to 30 years followed by those aged between 31 and 35 years respectively. Those aged between 20 and 25 years formed 20.2%. The findings imply that majority of the participants were relatively young in age.

**Table 4.4: Age of the Participants**

Age	Frequency	Percent (%)
20-25 years	19	20.2
26-30 years	39	41.5
31-35 years	20	21.3
Above 35 years	16	17.0
Total	94	100.0

#### 4.4.3 Academic Qualifications of the Participants

From the study it was established that majority of the participants attained college education (47.9%) as indicated in Table 4.5. This was followed by those who had attained university degree education (39.4%) and postgraduate (12.7%). The findings imply that majority of the participants were adequately educated to comprehend and answer the questions appropriately.

**Table 4.5: Academic Qualifications of the Participants**

Level	Frequency	Percent (%)
Secondary	0	0.0
College	45	47.9
University	37	39.4
Postgraduate	12	12.7
Total	94	100.0

#### 4.4.4 Position Held by the Participants in Projects

The study further sought to establish the positions held by the participants in various projects across Africa. From the findings in Table 4.6, client customer management team (42.6%)



were the majority followed by client billing end users (24.5%), client IT system support (20.2%) , manager (6.4%) while the senior and project managers were the least at 3.2% each. The findings show a relatively balanced distribution of the participants in the sample size implying the study benefited from a variety of opinions and responses to the questions.

**Table 4.6: Positions Held by the Participants**

<b>Department</b>	<b>Frequency</b>	<b>Percent (%)</b>
Client customer management team	40	42.6%
Client Billing End Users	23	24.5%
Client IT System Support	19	20.2%
Manager	6	6.4%
Project Manager	3	3.2%
Senior Manager	3	3.2%
Total	94	100%

#### **4.4.5 Participants’ Working Experience**

The study asked the participants to indicate their working experience as shown in Table 4.7. The study established that majority (48%) of the participants had worked for 5 to 10 years followed by those who had worked for 10 years and above. The findings imply that majority of the participants had sufficient working experience to effectively and sufficiently provide the information sought by the study.

**Table 4.7: Participants' Working Experience**

<b>Duration</b>	<b>Frequency</b>	<b>Percent (%)</b>
5 – 10 years	45	48%
10 years and above	29	31%
1 – 5 years	13	14%
Less than 1 year	7	7%
Total	94	100%

#### **4.5 Descriptive Statistics**

Descriptive statistics focuses on describing the basic feature of the data in a given study (Cooper & Schindler, 2013). In this section, descriptive analysis was used to summarize data regarding top management support, organizational culture, project management, project team commitment, project team competencies, communication management, stakeholder's management, partner and supplier management, strategic planning, training and education and project success in organizations in Africa.

##### **4.5.1 Top Management Support**

The study sought to establish the influence of top management support and commitment on project performance in projects across Africa. Several statements were fronted to which the participants responded to as shown in Table 4.8. The findings on the question as to whether top management supports and collaborates with project manager, team to ensure project success; the mean was 3.95 with a standard deviation of 0.527. On whether top management coaches and helps project teams to handle project hurdles or obstacles, the majority were in agreement with a mean of 4.11 and a standard deviation of 0.516. Further, on whether top management delegates power to project manager and teams to enhance project performance, majority were indifferent with a mean of 3.30 and a standard deviation of 0.483.

Further on whether projects with inadequate top management support rarely survive, the mean was 3.92 with a standard deviation of 0.738. In addition, the study sought to assess whether there are clear communication channels between top management, project manager and project teams, majority were in agreement with a mean of 3.67 and standard deviation of 0.699. On whether the top management is committed and provides resources and leadership to enhance project success, majority of the participants were in agreement with a mean of 4.10 and a standard deviation of 0.736. Moreover, on whether project manager's transformational leadership is very critical in achieving project success, majority were also in agreement with a mean of 4.02 and 0.571. Additionally, on whether project manager should possess both good relations, technical and administrative skills to lead a project to success, the majority were neutral with a mean of 3.35 and a standard deviation of 1.080. This finding is congruent with Dasborough (2002) and Rhoades (2002) who posited that it is undeniable that the management has a great impact on building up the positive responses between supervisors and employees such as creating good workplace environment and giving accurate feedback and criticism to employees.

From the findings on the effect of top management support on project performance, most of the recorded means were above average meaning that the respondents' responses ranged from being neutral to agree with the various statements. These findings imply that the project teams had a relatively good top management support in their work.

**Table 4.8: Top Management Support**

<b>Statements on Top Management Support</b>	<b>N</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Mean</b>	<b>S.D</b>
Top management supports and collaborates with project manager, team to ensure project success	94	2	5	41	31	15	3.95	.527
Top management coaches and helps project teams to handle project hurdles or obstacles	94	1	5	32	43	13	4.11	.516
Top management delegates power to project manager and teams to enhance project performance	94	5	28	49	6	6	3.30	.483
Projects with inadequate top management support rarely survives	94	4	20	45	15	10	3.92	.738
There are clear communication channels between top management, project manager and project teams	94	2	24	46	18	4	3.67	.699
The top management is committed and	94	1	17	27	40	9	4.10	.736

---

provides resources and leadership to enhance project success									
Project manager's transformational leadership is very critical in achieving project success	94	1	11	30	38	14	4.02		.571
Project manager should possess both good relations, technical and administrative skills to lead a project to success	94	3	34	42	10	5	3.35		1.080

---

#### 4.5.2 Organizational Culture

The study also sought to establish the influence of organizational culture on project performance as illustrated in Table 4.9. The first statement asked whether project team suggestions or opinions to improve the work environment are taken seriously and majority of the participants were in agreement with a mean of 3.52 and standard deviation of 1.179. Moreover, the second question sought to find out whether the organization culture and policies supports project teams and lowers turnover. Majority of the participants had a mean of 3.32 and a standard deviation of 0.823 respectively.

The third statement asked the participants whether project culture encourages implementation of project objectives and majority with a mean of 3.51 and a standard deviation of 1.171 were in agreement. The fourth statement sought to establish whether the work environment, culture and core values make project teams committed project performance. Majority of the participants were in agreement with a mean of 3.81 and a standard deviation of 0.876. This finding is congruent to that of Behson (2002) who posited that the context within the organization specifically related to project performance is important in determining what people do and how they feel in the organization. The fifth statement sought to find out if the organization promotes teamwork among the project teams to enhance project performance and majority of the participants with a mean of 4.43 and standard deviation of 0.698.

The sixth statement sought to find out whether project success depends on project manager, project teams and project culture they create. Majority of the participants were in agreement with a mean of 3.85 and a standard deviation of 0.879. This finding supports Greenhaus and Powell (2006) that it is a particular aspect of the organizational culture that reflects the attitudes and values in the organization about work and non-work lives.

**Table 4.9: Organizational Culture**

Statements on Organizational Culture	N	1	2	3	4	5	Mean	S.D
Project team suggestions or opinions to improve the work environment are taken seriously.	94	2	37	43	8	4	3.52	1.179
The organization culture and policies supports project teams and lowers turnover.	94	1	29	49	11	4	3.32	.823
Project culture encourages implementation of project objectives	94	1	21	48	18	6	3.51	1.171
The work environment, culture and core values make project teams committed project performance	94	3	20	45	19	7	3.81	.876
The organization promotes teamwork among the project teams to enhance project performance	94	2	10	20	44	18	4.43	.698
Project success depends on project manager, project teams and project culture they create.	94	1	19	47	21	6	3.85	.879

### 4.5.3 Project Management

The study sought to assess the influence of project management on project performance. The participants were asked whether the scope of each IT project was clearly established. The responses mean score was 2.86 and standard deviation of 1.035 as illustrated in Table 4.10. The result suggest that majority of the participants were neutral on their responses to the statement. Moreover, the study sought to determine whether a detailed project with measurable results were provided for each IT project. The mean score of 3.43 and standard deviation of 0.768 indicate that the majority of the participants were neutral on their responses to the statement. The third statement sought to establish whether the responsibility for all parts of each IT project is assigned. A mean score of 3.29 and standard deviation of 1.155 with the statement and the responses did not vary from the mean score by more than 1.155.

The fourth statement asked participants whether the activities across all affected parties are coordinated properly for each IT project. The mean response score of 2.67 indicated that majority of the participants were neutral in agreement with the statement. A standard deviation of 1.136 implies the participants indifferent in their responses to the statement. The

fifth statement sought to establish if each IT project progress was reviewed on a periodic basis. A mean score of 3.72 indicates that the participants were in agreement with the statement while a standard deviation of 0.919 implied that the participants were cohesive in their responses to the statement.

This finding is congruent to Halpern (2005) who posited that when both employer and employee interests in are put in mind, flexible project schedules can increase efficiency, work focus, and empower individuals to self-manage work time.

**Table 4.10: Project Management**

<b>Statements on Project Management</b>	<b>N</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Mean</b>	<b>S.D</b>
Scope of each IT project is clearly established.	94	16	50	20	6	2	2.86	1.035
A detailed project plan with measurable results is provided for each IT project	94	2	30	47	10	5	3.43	.768
The responsibility for all parts of each IT project is assigned	94	1	33	46	8	6	3.29	1.155
The activities across all affected parties are coordinated properly for each IT project	94	17	52	21	3	1	2.67	1.136
Each IT project progress is reviewed on a periodic basis	94	2	21	48	19	5	3.72	.919

#### **4.5.4 Project Team Competencies**

The study sought to establish the influence of project team competencies on project performance in Table 4.11. The first statement sought to determine if each IT project has a well experienced project manager who is dedicated to the project. The mean score was 3.56 with a standard deviation of 1.054 indicating that the participants were agreement with the statement.

The second statement sought to establish whether a variety of cross-functional team members are selected. Majority of the participants with a mean score of 3.50 and a standard deviation of 0.792 indicates that the participants were in agreement with the statement. The third statement asked the respondents whether the people selected for each IT project team have the best business and technical knowledge. The findings indicated that the majority of the participants were in agreement with a mean of 3.76. A standard deviation of 1.033 implies that the participants were indifferent in their responses to the statement. The fourth statement sought to ascertain whether each IT project team is empowered to make decisions relating to the project. The mean score was 3.10 with a standard deviation of 1.197 indicating the

participants were neutral and with divergent views to the statement. The fifth statement asked the participants whether each IT project team was working on the project full-time as their only priority. The mean score was 4.02 with a standard deviation of 0.568 indicating that the respondents were in agreement and cohesive in their responses to the statements.

**Table 4.11: Project Team Competencies**

Statements on Project Team Competencies	N	1	2	3	4	5	Mean	S.D
Each IT project has a well experienced project manager who is dedicated to the project	94	1	25	49	13	6	3.56	1.054
A variety of cross-functional team members are selected	94	1	28	51	9	5	3.50	.972
The people selected for each IT project team have the best business and technical knowledge	94	3	23	48	17	3	3.76	1.033
Each IT project team is empowered to make decisions relating to the project	94	5	29	53	5	2	3.10	1.197
Each IT project team is working on the project full-time as their only priority	94	1	15	19	44	15	4.02	.568

#### 4.5.5 Project Success

The participants were asked whether IT projects are completed on-time as in Table 4.12. Majority of the respondents were in agreement with a mean of 4.30 and a standard deviation of 0.583. The second statement sought to ascertain whether IT projects were completed on-budget. From the findings, majority of the participants were neutral with a mean of 3.40 and standard deviation of 0.560 implying that their responses were cohesive.

The third statement sought to establish whether IT projects were completed with all features and functions as initially specified. The mean score was 4.20 with a standard deviation of 0.789 implying that the participants were in agreement with the statement. The fourth statement asked the participants whether IT projects meet the needs of the project stakeholders. The mean score was 4.43 with a standard deviation of 0.516 indicating that the participants were in agreement with the statement. This is congruent with Jones and George (2000) who posited that in order to improve performance, organizations are trying to improve the performance of human capital.

The study also in the fifth statement sought to establish whether IT projects achieve their business goals and purpose. The mean score was 4.75 with a standard deviation of 0.483

implying that the respondents were strongly in agreement with the statement. The study sought to establish whether the end products of IT projects were used. The mean score was 4.75 with a standard deviation of 0.483 implying that the respondents were strongly in agreement with the statement.

**Table 4.12: Project Success**

Statements on Project success	N	1	2	3	4	5	Mean	S.D
IT projects are completed on-time	94	1	7	32	44	10	4.30	.483
IT projects are completed on-budget	94	4	28	45	11	6	3.40	.568
IT projects are completed with all features and functions as initially specified	94	1	11	24	46	12	4.20	.789
IT projects meet the needs of the project stakeholders	94	1	13	21	47	12	4.43	.516
IT project achieve its business goals and purpose	94	1	5	15	50	13	4.75	.483
End products of IT projects are used	94	1	5	15	50	13	4.75	.483

#### 4.5.6 Communication Management

The study sought to establish whether there was effective communication between project team members and users the mean was 4.3 with a standard deviation of 0.483. On whether there was effective communication amongst functional departments, the majority were in agreement with a mean of 3.4 and a standard deviation of 0.568. Further, on whether there was effective communication to get the users' requirements and comments, majority were indifferent with a mean of 4.2 and a standard deviation of 0.789.

Further on whether there were enough communication channels to inform users about the objectives of the IT projects, the mean was 4.43 with a standard deviation of 0.516. In addition, the study sought to assess whether IT projects progress were communicated amongst stakeholders, majority were in agreement with a mean of 3.4 and standard deviation of 0.568. On whether all stakeholders and team members willingly keep each other informed, majority of the participants were in agreement with a mean of 4.75 and a standard deviation of 0.483.

**Table 4.13: Communication Management**



<b>Statements on Communication Management</b>	<b>N</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Mean</b>	<b>S.D</b>
There is effective communication between project team members and users	94	1	7	32	44	10	4.30	.483
There is effective communication amongst functional departments	94	4	28	45	11	6	3.40	.568
There is effective communication to get the users' requirements and comments.	94	1	11	24	46	12	4.20	.789
There are enough communication channels to inform users about the objectives of the IT projects.	94	1	13	21	47	12	4.43	.516
IT projects progress are communicated amongst stakeholders	94	4	28	45	11	6	3.40	.568
All stakeholders and team members willingly keep each other informed	94	1	5	15	50	13	4.75	.483

#### **4.5.7 Stakeholders Management**

The study also sought to establish the influence of stakeholder management on project performance. The first statement asked whether structured stakeholder analysis was conducted on a regular basis to understand their expectations, identify synergies and risks, majority of the participants were in agreement with a mean of 2.86 and standard deviation of 1.035. Moreover, the second question sought to find out whether stakeholders' relationships are managed along and across IT projects. Majority of the participants were neutral with a mean of 3.43 and a standard deviation of 0.768.

The third statement asked the participants whether IT projects requirements were thoroughly understood and if they reflected stakeholder needs and the capability of the organization the majority were also neutral with a mean of 3.29 and a standard deviation of 1.155 were in agreement. The fourth statement sought to establish whether stakeholders were recognized for their contribution to efficient IT projects. Majority of the participants were in agreement with a mean of 2.67 and a standard deviation of 1.136. The fifth statement sought to find out if the roles and responsibilities of all stakeholders were identified. Majority of the participants were neutral with a mean of 3.72 and a standard deviation of 0.919.

**Table 4.14: Stakeholders Management**

<b>Statements on Stakeholders Management</b>	<b>N</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Mean</b>	<b>S.D</b>
Structured stakeholder analysis is conducted on a regular basis to understand their expectations, identify synergies and risks	94	16	50	20	6	2	2.86	1.035
Stakeholders' relationships are managed along and across IT projects	94	2	30	47	10	5	3.43	.768
IT projects requirements are thoroughly understood, they reflect stakeholder needs and the capability of the organization	94	1	33	46	8	6	3.29	1.155
Stakeholders are recognized for their contribution to efficient IT projects	94	17	52	21	3	1	2.67	1.136
The roles and responsibilities of all stakeholders are identified	94	2	21	48	19	5	3.72	.919

#### **4.5.8 Partner and supplier Management**

The study sought to assess the influence of partner and supplier management on project performance. The participants were asked whether the partners & suppliers communicated well with their organization. The responses mean score was 3.52 and standard deviation of 1.179. Moreover, the study sought to determine whether the partners & suppliers personnel had enough experience for implementing IT projects. The mean score of 3.32 and standard deviation of 0.823 indicate that the majority of the participants were neutral on their responses to the statement.

The third statement sought to establish whether the partners & suppliers provided quality services. A mean score of 3.51 and standard deviation of 1.171 implied the participants were neutral with the statement. The fourth statement asked participants whether the training offered by the partners & suppliers was adequate to increase the user's proficiency in each IT project usage. The mean response score of 3.81 indicated that majority of the participants were neutral in agreement with the statement. A standard deviation of 0.876 implies the participants indifferent in their responses to the statement. The fifth statement sought to establish whether the partners & suppliers provided suitable formal documents required for each IT project. A mean score of 4.43 indicates that the participants were in agreement with the statement while a standard deviation of 0.698 implied that the participants were cohesive in their responses to the statement.

The sixth statement sought to establish whether IT product/service quality was regarded as the most important factor in selecting suppliers. A mean score of 3.85 indicates that the

participants were in agreement with the statement while a standard deviation of 0.879 implied that the participants were cohesive in their responses to the statement. The seventh statement sought to establish whether long-term cooperative relations with partners and suppliers were established. A mean score of 3.85 indicates that the participants were in agreement with the statement while a standard deviation of 0.879 implied that the participants were cohesive in their responses to the statement.

**Table 4.15: Partner and supplier Management**

<b>Statements on Partner and supplier Management</b>	<b>N</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Mean</b>	<b>S.D</b>
The partners & suppliers communicate well with our organization.	94	2	37	43	8	4	3.52	1.179
The partners & suppliers personnel have enough experience for implementing IT projects.	94	1	29	49	11	4	3.32	.823
The partners & suppliers provide quality services.	94	1	21	48	18	6	3.51	1.171
The training offered by the partners & suppliers is adequate to increase the user's proficiency in each IT project usage.	94	3	20	45	19	7	3.81	.876
The partners & suppliers provide suitable formal documents required for each IT project.	94	2	10	20	44	18	4.43	.698
IT product/service quality is regarded as the most important factor in selecting suppliers.	94	1	47	19	21	6	3.85	.879
Long-term cooperative relations with partners and suppliers are established	94	1	19	47	21	6	3.85	.879

#### **4.5.9 Strategic Planning**

The study sought to assess the influence of strategic planning on project performance. The participants were asked whether IT capabilities were constantly being reviewed against strategic goals. The responses mean score was 3.95 and standard deviation of 0.527.

Moreover, the study sought to determine whether IT plans were redesigned as required to meet evolving conditions. The mean score of 4.11 and standard deviation of 0.516 indicate that the majority of the participants did not agree with the statement. The third statement sought to establish whether strategic IT planning was a continuous process. A mean score of 3.30 and standard deviation of 0.483 implied the participants were neutral with the statement.

The fourth statement asked participants whether written guidelines existed to structure strategic IT planning in their organization. The mean response score of 3.92 indicated that majority of the participants were neutral in agreement with the statement. A standard deviation of 0.738 implies the participants indifferent in their responses to the statement. The fifth statement sought to establish if strategic IT planning included inputs from all functional areas. A mean score of 3.67 indicates that the participants were in agreement with the statement while a standard deviation of 0.699 implied that the participants were cohesive in their responses to the statement.

**Table 4.16: Strategic Planning**

<b>Statements on Strategic Planning</b>	<b>N</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Mean</b>	<b>S.D</b>
IT capabilities are constantly reviewed against strategic goals.	94	2	5	41	31	15	3.95	.527
IT plans are redesigned as required to meet evolving conditions	94	1	5	32	43	13	4.11	.516
Strategic IT planning is a continuous process	94	5	28	49	6	6	3.30	.483
Written guidelines exist to structure strategic IT planning in our organization	94	4	20	45	15	10	3.92	.738
Strategic IT planning includes inputs from all functional areas	94	2	24	46	18	4	3.67	.699

#### **4.5.10 Training and Education**

The participants were asked whether specific IT skills training was given to team members in all IT projects. Majority of the respondents were in agreement with a mean of 2.86 and a standard deviation of 1.035. The second statement sought to ascertain whether specific user training needs were identified early in the implementation of each IT project. From the findings, majority of the participants were neutral with a mean of 3.43 and standard deviation of 0.768.

The third statement sought to establish whether a formal training program had been developed to meet the requirements of each IT project users. The mean score was 4.20 with a standard deviation of 0.789 implying that the participants were in agreement with the statement. The fourth statement asked whether the training materials had been customized for each specific job. The mean score was 3.43 and standard deviation of 0.768 indicating that the participants were not in agreement with the statement. The study also in the fifth statement sought to establish whether employees were tracked to ensure that they had

received the appropriate training. The mean score was 3.29 with a standard deviation of 1.155 implying that the respondents were strongly in agreement with the statement. The study sought to establish whether

The sixth question aimed at understanding if the organization provided regular training sessions, the mean score was 2.67 with a standard deviation of 1.136. In addition to this, the study aimed at discovering whether education and training were encouraged and supported the mean score was 2.67 with a standard deviation of 1.136. Lastly the research was keen to discover if the resources for education and training had been put in place, the mean score was 3.72 with a standard deviation of 0.919.

**Table 4.17: Training and Education**

<b>Statements on Training and Education</b>	<b>N</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Mean</b>	<b>S.D</b>
Specific IT skills training is given to team members in all IT projects	94	16	50	20	6	2	2.86	1.035
Specific user training needs were identified early in the implementation of each IT project	94	2	30	47	10	5	3.43	.768
A formal training program has been developed to meet the requirements of each IT project users	94	47	30	3	10	5	3.43	.768
Training materials have been customized for each specific job	94	2	30	47	5	10	3.43	.768
Employees are tracked to ensure that they have received the appropriate training	94	1	33	46	8	6	3.29	1.155
Our organization provides regular training sessions	94	17	52	21	3	1	2.67	1.136
Education and training are encouraged and supported	94	17	52	21	3	1	2.67	1.136
The resources for education and training have been put in place	94	2	21	48	19	5	3.72	.919

#### 4.5.11 Inter relationship between the determinants of project success

In order to obtain an estimate for the structural model relationships (i.e., the path coefficients), the PLS-SEM algorithm procedure has been run with 105 cases (research sample size) and 5000 bootstrap subsamples as a minimum (Hair et al., 2011) on SPSS. Such estimates represent the hypothesized relationships among the constructs, and the path coefficients have standardized values between -1 and +1. Estimated path coefficients close to +1 represent strong positive relationships (and vice versa for negative values) that are almost always statistically significant (i.e., different from zero in the population). The closer the estimated coefficients are to 0, the weaker the relationships. Very low values close to 0 are usually nonsignificant (i.e., not significant different from zero). Whether a coefficient is significant ultimately depends on its standard error that is obtained by means of bootstrapping. The bootstrap standard error allows the computing of the empirical t value. Critical t values are 1.65 (significance level = 10 percent), 1.96 (significance level = 5 percent), and 2.58 (significance level = 1 percent) (Hair Jr et al., 2014).

Regarding the model's main relationships, it shows that there is a statistically significant positive effect of top management support and commitment on the dependent latent variable ict project success at the level of  $p < 0.01$  and  $t \geq 4.888$ . The exogenous construct (top management support and commitment) significantly contributes to explaining the endogenous latent variable project success with a total effect of 0.645. Furthermore, the results above shows that there is a statistically significant positive effect of project management project management on the dependent latent variable (project management success) at the level of  $p < 0.01$  and  $t \geq 3.112$  and project management with project success project success at the level of  $p < 0.05$ . The exogenous construct (project management) significantly contributes to explaining the endogenous latent variable (project management success) with a total effect of 0.500 and the endogenous latent variable project success with a total effect of 0.327. Also, the results above shows that there is a statistically significant negative effect of stakeholders management on the dependent latent variable project success at the level of  $p < 0.05$  and  $t \geq 2.116$ . The exogenous construct (stakeholder's management) significantly contributes to explaining the endogenous latent variable project success with total effect of -0.289.

## 4.6 Inferential Statistics

In this section, the study conducted both correlation analysis and multiple regression analysis to test the influence among the variables.

## 4.7 Regression Analysis

### 4.7.1 Model Summary

The researcher conducted multiple regression analysis to analyze the determinants of project performance in across Africa. The Regression model summary in Table 4.14 shows that the eight predictor variables accounted for 76.8% of the total variation in project performance because the 'R square' value is 0.768. Therefore, further research should be conducted to investigate the other factors constituting 23.2% which influence project performance.

Table 4.14 Model Summary

Descriptives

		N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Mean	CM	6	3.80	.24	.10	3.55	4.06	3.53	4.10
	PM	6	3.77	.17	.07	3.59	3.95	3.51	3.97
	PSM	8	3.62	.12	.04	3.52	3.72	3.47	3.85
	PTC	5	3.42	.31	.14	3.03	3.81	2.94	3.78
	SP	11	3.56	.19	.06	3.43	3.69	3.26	3.94
	TE	7	3.34	.14	.05	3.21	3.47	3.17	3.49
	TM	9	3.66	.22	.07	3.49	3.83	3.15	3.93
	Total	52	3.60	.24	.03	3.53	3.66	2.94	4.10

- a. Predictors: (Constant), Top management support, Communication management, Project management, stakeholder management, partners and suppliers management, strategic planning, Project team competences and training and education.

#### 4.7.2 Correlation Analysis

Correlation analysis was done to investigate the existence and nature of relationship between top management support and ICT project performance. From the correlation analysis, the study established that there was a strong and significant positive correlation ( $r = 0.921$ ) between top management support and ICT project performance, the significance level was  $p < 0.001$ . This finding supports Mullins (2005) who argued that indicators of top management support are positive relationship between project performance, job satisfaction and quality work by the employee.

The study further sought to determine the relationship between organizational culture and ICT project performance. The findings established the existence of a strong significant positive relationship ( $r = 0.879$ ) between organizational culture and project performance. The findings emphasize the importance of organizational culture and ICT project performance in project-based organization. This finding agrees with those of Elroy and James, (2001) that organizations that create cultures that value balance and assist employees to achieve life balance are rewarded with highly engaged employees.

Additionally, the study sought to establish the relationship between project management and project performance. The results established the existence of a strong significant and positive relationship ( $r = 0.859$ ) between project management and ICT project performance. The significance level was  $p < 0.001$ . These findings are congruent to those of Chow and Keng-Howe's, (2006) who established that the more flexible the work schedules, the greater the self-reported employee productivity.

The study further established that there was a strong significant and positive relationship ( $r = 0.856$ ) between project team competencies and project performance. This finding is consistent with Roehling *et al*, (2001) that effective commitment is related to the knowledge that employees have about the project performance programs in their organizations to a greater extent.



Table 4.7.2 Reliability Analysis

Construct	Composite Reliability	Cronbach's Alpha
Top Management Support	0.934	0.921
Strategic Planning	0.909	0.882
Communication Management	0.913	0.885
Project team competencies	0.897	0.856
Stakeholder management	0.875	0.834
Project Management	0.895	0.859
Partner Supplier management	0.905	0.880
Training and Education	0.951	0.942
Organizational culture	0.875	0.879
Project Success	0.862	0.807

### 4.7.3 Analysis of Variance

ANOVA test was conducted to test the significance of the relationship between the independent and dependent variables by predicting the power of the model with that of an intercept only model (Faraway, 2002). The results in Table 4.15 show that the P-value of 0.001 was established from the ANOVA test. This revealed the existence of a statistically significant relationship between project performance and the eight independent variables (Top management support, communication management, Project management, Project team competencies, stakeholder's management, partners and suppliers management, strategic planning and training and education). The calculated F value was greater than the F critical value ( $136.572 > 1.341$ ) implying that Top management support, communication management, Project management, Project team competencies, stakeholders management, partners and suppliers management, strategic planning and training and education significantly determine project performance. It also indicates goodness of fit of the model.

**Table 4.15. Analysis of Variance**

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Mean	Between Groups	1.12	6	.19	4.62	.001
	Within Groups	1.81	45	.04		
	Total	2.92	51			

- a. Dependent variable: Project success

- b. Predictors: (Constant), Top management support, communication management, Project management, Project team competencies, stakeholders management, partners & suppliers management, strategic planning and training & education

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

The study sought to find out the determinants of information communication technology project performance in Africa. This chapter presents a summary of the major findings, conclusions and recommendations with respect to the study objectives and suggestion for further study.

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

This section provides a summary of the findings on the nine variables under study (Top management support, Organizational culture, Communication management, Project team competencies, Stakeholder management, Partner and supplier management, Project management, Strategic planning and Training and Education) and their influence on information communication technology project performance.

##### **5.2.1 Top Management Support**

The first objective of the study sought to determine the influence of top management support on ict project performance in Africa. The findings established that top management supports and collaborates with project manager, team to ensure project success. The top management also coached and helped project teams to handle project hurdles or obstacles. Further, the top management did not sufficiently delegate power to project manager and project teams to enhance project performance.

Additionally, the participants agreed that projects with inadequate top management support rarely survived. As well, the study established that there were clear communication channels between top management, project manager and project teams. Moreover, the study found out that the top management was committed and provided resources and leadership to enhance project success. Moreover, the participants were in agreement that the project manager's

transformational leadership is very critical in achieving project success. Majority of the participants were indifferent that by the project manager possessing both good relations, technical and administrative skills will lead a project to success. This implies that there are other factors such as working environment, project team competency, communication and relations which when combined with the project manager's capabilities lead to project success. Overall, the findings imply that the project teams had a relatively good top management support.

Top management support and commitment has been highlighted as a key factor in IT project success by many researchers. Thus, the findings from this research, was, indeed, in an agreement other researchers on the significant role of top management support in IT project success (Al-Mudimigh et al., 2011, Alaskari et al., 2013, Annamalai and Ramayah, 2013, Dezdar and Ainin, 2012, Fortune and White, 2006, Nasir and Sahibuddin, 2011, Ngai et al., 2008, Young and Jordan, 2008, Ziemba and Oblak, 2013). This is because IT projects are large-scale and have an effect on a number of people and departments in any organization. Consequently, this kind of project requires a lot of resources and should receive support and commitment from top management prior to its implementation.

## **5.2.2 Project and Organizational Culture**

The second objective of the study sought to determine the influence of project and Organizational culture on project performance. The findings showed that the project team suggestions or opinions to improve the work environment were taken seriously. Nevertheless, the study found that organization culture and policies neither supported project teams nor lowered project team turnover. Nevertheless, the study established that project culture encouraged implementation of project objectives as majority of the participants were in agreement. The study found out that project work environment, culture and core values made project teams committed to project performance. The study further recognized that the organization promoted teamwork among the project teams to enhance project performance. Similarly, the study established that project success depends on project manager, project teams and project culture they create. This may have resulted from a project culture that reflected the attitudes and values espoused by the organization.

### **5.2.3 Project Management**

The third objective of the study sought to assess the influence of project management on project performance. The findings showed that the organization did not allow for flexibility in project schedules or scheduling. Likewise, the study found out that project teams with greater control of schedules were not necessarily more engaged and satisfied. Similarly, majority of the participants were neutral on whether project leave policies increases the impact of performance by reducing work related stress.

The majority of the participants were apathetic as to whether more flexible project schedules increases project team productivity. However, majority of the participants were in agreement that compressed and alternative project schedules motivate project teams to enhance project performance. This is true because apart from flexible project schedules increasing efficiency, work focus, and empowerment of individuals to self-manage project activity durations enhances project performance. The study also established that project schedules took gender disparity into consideration and ensured there are equal work proportions to either gender. Similarly, the study found that majority of the participants were indifferent on whether slow decision making causes project delays and problems of time performance.

### **5.2.4 Project Team Competencies**

The fourth objective of the study sought to determine the influence of project team commitment on project performance. From the results, the organization conducted team building workshops to discuss project success. In this way, the project teams have opportunities to share feedback, challenges and opportunities in the information technology communication projects. The study further established that motivated and committed project teams enhance project performance. In addition, the composition of project teams, competency and level of responsibility accounts for failure or success of projects.

The study also ascertained that majority of the participants were undecided on whether project team members felt a strong personal attachment and satisfaction at the work place. Moreover, majority of the participants agreed that the level of involvement of project teams in planning and design determines project performance. The study further determined that

majority of the participants were unresponsive on whether linking project teams with job responsibilities enabled the project manager to balance conflicting objectives to achieve success. The participants also agreed that lack of adequate project team involvement causes project implementation delays.

### **5.2.5 Stakeholders Management**

Stakeholders are persons or organizations who are actively involved in the project or whose interests may be positively or negatively affected by the performance or completion of the project (PMI, 2013). Therefore, identifying stakeholders and understanding their relative degree of influence on a project is critical. A project's success or failure is directly linked to its stakeholders' perceptions (Bourne and Walker, 2008). Poor stakeholder management is one of the influencing factors in conducting IT projects (Yeo, 2002). Stakeholder's management is an important success factor and the outcome of the questionnaire shows and confirms that stakeholder management was important and it was ranked eighth in the list with a mean value of 4.15. Therefore, stakeholder management is considered to be part of the research conceptual framework in order to test its impact on the success criteria. The structural model analysis shows that stakeholder management has a negative impact on Information technology Project success. Stakeholders and their interests may be affected by projects or project outcomes; thus, from an ethics and sustainable management perspective, they must not be ignored in project management process. Since any project has many stakeholders, whose interest may be related or in conflict, the project manager should manage the stakeholders' needs and assure their satisfaction in order to increase the chance of the project success.

### **5.2.6 Partners and suppliers Management**

Partners and suppliers' management plays a significant role in project success, as organizations select their partners and suppliers based on their quality rather than only on their price. Price has no meaning without a measure of the quality being purchased (Deming, 2000). The IT partners and suppliers should communicate well with the organization, and their personnel should have sufficient experience in implementing IT projects with high quality services which may enhance the project success, including adequate training with suitable formal documents (user manual, operation guide, etc.). Partners' and suppliers' detailed performance information should be kept and maintained for regular review in order

to either continue with the same partners and suppliers or to look for a better one so that long-term cooperative relations with partners and suppliers can be established. Therefore, technical expertise, domain knowledge, adequate manpower, project management skills and long existence in the field should be the characteristics of the partners and suppliers. Therefore, this factor is considered in the exploratory study for further examination in order to confirm its importance. In the exploratory study, the factors were listed in a questionnaire to be ranked based on their importance in the participants' point of view. The outcome of the questionnaire shows and confirms that partners and suppliers management was important and it was ranked as seventh in the list with a mean value of 4.18. Therefore, partners and suppliers management is considered to be part of the research conceptual framework in order to test its impact on the success criteria. The measurement model shows that the partners and suppliers management construct was tested and was found to be reliable and valid. The structural model analysis using PLS shows that partners and suppliers management has no direct impact on project management success. This indicates, partners and suppliers' management is not a critical contributor of information technology communication project success.

### **5.2.7 Training and Education**

Training and education as a critical part of IT project implementation have been referenced by a considerable number of citations (Bukamal and Wadi, 2016, Dezdar and Ainin, 2011c). It is important to have a detailed plan for the training facilities and resources. Specific IT skills training should be given to the project team members, and a formal training programme with customized materials should be developed to meet the users' requirements before the implementation of the IT project. Training and education should be a continuous process in order to keep both the project team members and the end users up to date with the required technical and business skills in order to enhance the success of the new projects. Training and education is an important success factor therefore it was considered in the exploratory study for further testing in order to confirm its importance. In the exploratory study, the factors were listed in a questionnaire to be ranked based on their importance in the participants' point of view. The outcome of the questionnaire shows and confirms that training and education is important and it was ranked sixth in the list with a mean value of 4.31 therefore, training and education is considered to be part of the research conceptual framework in order to test its impact on the success criteria. The measurement model shows that the training and education

construct was tested and was found to be reliable and valid. The structural model analysis using PLS shows that training and education has no effect on Project Management Success. While training and education is considered important either conceptually or empirically by other researchers, the constructs measure has no predictive ability to account for whether the project is going to be successful or not. However, training and education should not be ignored by top management, and there should be an allocated budget for training for both the end users and the project team with a clear career development plan for the IT project team members.

### **5.2.8 Strategic Planning**

Strategic IT planning establishes a clear vision and measurable objectives for the use of IT in an organization, prescribes strategies to achieve this vision with the knowledge of the available IT capabilities and opportunities, provides measures for success and possibly suggests concrete initiatives for implementing the developed strategies (Ojo et al., 2009). IT capabilities should be constantly reviewed against organization strategic goals, and IT plans should be redesigned as required to meet evolving conditions (Stratman and Roth, 2007). Strategic IT planning should be a continuous process with written guidelines to structure strategic IT planning. Top management should be involved in strategic IT planning, and these plans should include inputs from all the functional areas in the organization (Stratman and Roth, 2007). Strategic planning is an important success factor, as seen in the literature review (Al-Turki, 2011, Annamalai and Ramayah, 2013, Gunasekaran and Garets, 2003, Hong, 2009). The outcome of the questionnaire shows and confirms that strategic planning was important as it was ranked fifth in the list with a mean value of 4.36.

### **5.2.9 Communication Management**

Communication management should be reliable and constant and begin from the early stage of the IT project implementation. Communication management is essential through the different phases of the IT project implementation to inform employees why change is needed, what is happening, and how it will benefit the organization (Nah et al., 2007). Communication is necessary for creating general acceptance and understanding of the new systems. Thus, there should be effective communications between project team members, users, and amongst functional departments. Moreover, sufficient communication channels (presentations, video broadcasts over a local portal, frequent e-mail updates, bulletins,



newsletters, weekly meetings, etc.) should exist in order to inform and update users and stakeholders about the objectives and the progress of the IT projects (Nah et al., 2007). Communication management is an important success factor (Al-Mashari and Al-Mudimigh, 2003, Alaskari et al., 2013, Annamalai and Ramayah, 2013, Dezdar and Ainin, 2012, Nah et al., 2007, Nasir and Sahibuddin, 2011, Ziemba and Oblak, 2013). In the exploratory study, the factors were listed in a questionnaire to be ranked based on their importance in the participants' point of view. The outcome of the questionnaire shows and confirms that communication management was important as it was ranked fourth in the list with a mean value of 4.36.

**Table 5.2 Summary of Findings**

<b>Construct</b>	<b>Description</b>
Top Management Support	Top management support is a critical success factor and it has the highest impact on Information communication technology projects. This result is consistent with many previous studies such as Dezdar and Ainin (2012), Kamhawi (2007) and Al-Mashari et al. (2006). The result also indicates the strength in the relationship and predictive ability of top management support to ensure project success, whether it is for the short term or for the long term benefit.
Strategic Planning	Strategic IT planning establishes a clear vision and measurable objectives for the use of IT in an organization, prescribes strategies to achieve this vision with the knowledge of the available IT capabilities and opportunities, provides measures for success and possibly suggests concrete initiatives for implementing the developed strategies (Ojo et al., 2009) The outcome of the questionnaire shows and confirms that strategic planning was important as it was ranked fifth in the list with a mean value of 4.36
Communications Management	Communication management should be reliable and constant and begin from the early stage of the IT project implementation. Communication management is essential through the different phases of the IT project implementation to inform employees why change is needed, what is happening, and how it will benefit

	<p>the organization (Nah et al., 2007). The outcome of the questionnaire shows and confirms that communication management was important as it was ranked fourth in the list with a mean value of 4.36.</p>
Project Management	<p>Project management has become a key activity in most modern organisations (Belout and Gauvreau, 2004, Dezdar and Ainin, 2012), and is crucial for success of projects. Since IT projects are challenging, costly, and risky, in order to achieve their desired benefits, the implementation of IT projects must be carefully managed and monitored. The outcomes of the questionnaire confirm that project management is perceived to be very important, as it was ranked second in the list with a mean value of 4.54.</p>
Project Team Competency	<p>A project team should comprise the best business and technical knowledge in the organization to maximize the chances of success of the IT project. The team should be cross-functional and possess the necessary technical and functional skills for design, implementation, and integration (Nah et al., 2007). The outcome of the questionnaire shows and confirms that project team competency was important as it was ranked third in the list with a mean value of 4.36</p>
Stakeholders Management	<p>Stakeholders are persons or organizations who are actively involved in the project or whose interests may be positively or negatively affected by the performance or completion of the project (PMI, 2013). The outcome of the questionnaire shows and confirms that stakeholder's management was important and it was ranked eighth in the list with a mean value of 4.15.</p>
Partners and Suppliers Management	<p>Partners and suppliers' management plays a significant role in project success, as organizations select their partners and suppliers based on their quality rather than only on their price. Price has no meaning without a measure of the quality being purchased (Deming, 2000). The outcome of the questionnaire shows and confirms that partners and suppliers management was important and it was ranked as seventh in the list with a mean value of 4.18</p>

Training and Education	<p>Training and education as a critical part of IT project implementation have been referenced by a considerable number of citations (Bukamal and Wadi, 2016, Dezdar and Ainin, 2011c). Training and education should be a continuous process in order to keep both the project team members and the end users up to date with the required technical and business skills in order to enhance the success of the new projects. The outcome of the questionnaire shows and confirms that training and education is important and it was ranked sixth in the list with a mean value of 4.31. While training and education is considered important either conceptually or empirically by other researchers, the constructs measure has no predictive ability to account for whether the project is going to be successful or not. However, training and education should not be ignored by top management, and there should be an allocated budget for training for both the end users and the project team with a clear career development plan for the IT project team members</p>
------------------------	---

### 5.3 Comparison of finding with Secondary Data

The findings from the research were compared with secondary data obtained from existing literature on ICT project failures, journals, professional publication (e.g. Computing, Computer weekly ,PMI , Research gate, cases of system failures (Fielding,2003). The secondary data also focused on sources who had used the same existing Research Conceptual Framework as a basis for their research.

**Table 5.3 Comparison of finding with secondary data**

Factor	Secondary Data Source	Description	Comparison
Top Management Support	Conceptual Framework	Descriptive framework for ICT success or Failure (David Gichoya, 2005)	The means of IT top management support elements ranges from 3.15 to 3.93 in the

	Conceptual Framework	A Conceptual Framework for IS Project Success (Thanh D. Nguyen 2016)	secondary data from the existing conceptual frameworks, reports, research and books. This mean is in line with the output of the research. The results show that the top management support and commitment elements relating to participating in IT projects, sharing long term plans, allocating sufficient budget and resources, and actively supporting IT projects, are highly perceived. The results suggest that creating the environment for IT projects to succeed, viewing IT projects as a strategic decision, having long-term top management commitment, and considering IT projects as a critical priority are perceived at a middle level, and providing sufficient reward is perceived at a low level.
	Conceptual Framework	Pinto and Slevin Critical success factors in projects (Pinto and Slevin , 1987)	
	Report	Chaos Report (Standish Group,2009)	
	Books	Al-Mudimigh et al., 2011, Alaskari et al., 2013, Annamalai and Ramayah, 2013, Dezdar and Ainin, 2012, Fortune and White, 2006, Holland and Light, 1999, Jiang et al., 1996, Nasir and Sahibuddin, 2011, Shanks et al., 2000, Young and Jordan, 2008, Ziemba and Oblak, 2013)	
	Research	INFORMATION SYSTEM FAILURE CAUSES-AN INVESTIGATION IN KENYAN ORGANIZATIONS ESTHER A. MUKOYA 2005	
<b>Strategic Planning</b>	Books	Al-Turki, 2011, Annamalai and Ramayah, 2013, Gunasekaran and Garets, 2003, Hong,2009, Ojo et al., 2009	The results of the study show that most respondent's perceptions of strategic planning are in the mean ranging from 3.39 to 3.94 which is congruent with the secondary data. The results suggest that the strategic planning element relating to planning as a continuous process is highly perceived. The results suggest that the following elements: IT capabilities are constantly reviewed against strategic goals, IT plans are redesigned as required to meet evolving conditions, written guidelines exist to structure strategic IT planning in the organization, top management is involved in IT strategic planning, and IT strategic planning includes inputs from all functional areas, are perceived at a middle level.
	Journal	Might, R. J., & Fischer, W. A. (1985). The Role of Structural Factors in Determining Project Management Success. IEEE Transactions on Engineering Management, 32(2), 71-77.	
	Research	Moran, C.R., 1998. Strategic information technology planning in higher education: A new roadmap to the 21st century academy. Bolton, MA: Anker Publishing Company, Inc.	
	Research	Government informatics: toward the successful implementation of ICT projects in Kenya David M. Gichoya,2007	

<b>Communications Management</b>	Books	(Al-Mashari and Al-Mudimigh, 2003, Alaskari et al., 2013, Annamalai and Ramayah,2013, Dezdar and Ainin, 2012, Holland and Light, 1999, Jiang et al., 1996, Nah et al.,2007, Nasir and Sahibuddin, 2011, Rosario, 2000, Ross, 1999, Sumner, 1999, Ziemba and Oblak, 2013)	Communication management should be reliable and constant and begin from the early stage of the IT project implementation. Communication management is essential through the different phases of the IT project implementation to inform employees why change is needed, what is happening, and how it will benefit the organization (Nah et al., 2007). The outcome of the questionnaire shows and confirms that communication management was important as it was ranked fourth in the list with a mean value of 4.36 this results are consistent with the secondary data.
<b>Project Management</b>	Conceptual Framework	Factor Model (Heeks, 2004)	Project management is an important success factor, as seen in the literature review (Al-Mashari et al., 2003, Alaskari et al., 2013, Dezdar and Ainin, 2012, Murray and Coffin, 2001, Nah et al., 2007, Nasir and Sahibuddin, 2011, PMI, 2013, Rosario, 2000, Ziemba and Oblak, 2013). The outcomes of the questionnaire confirm that project management is perceived to be very important, as it was ranked second in the list with a mean value of 4.54,this is in rapport with the existing secondary data.
Journal	DE-ESCALATING THE IT-PROJECTS Ghulam Muhammad Kundi,2007		
Journal	PMBOK Guide ,2007		
Books	Al-Mashari et al., 2003, Alaskari et al., 2013, Dezdar and Ainin, 2012, Holland and Light, 1999, Murray and Coffin, 2001, Nah et al., 2007, Nasir and Sahibuddin, 2011, PMI, 2013, Rosario, 2000, Ross, 1999, Sumner, 1999, Ziemba and Oblak, 2013		
<b>Project Team Competency</b>	Books	Alaskari et al., 2013, Alghathbar, 2008, Annamalai and Ramayah, 2013, Dezdar and Ainin, 2012, Holland and Light, 1999, Jiang et al., 1996, Ross, 1999, Shanks et al., 2000, Sumner, 1999, Ziemba and Oblak, 2013	Project team competency is an important success factor, as seen in the literature review (Alaskari et al., 2013, Alghathbar, 2008, Annamalai and Ramayah, 2013, Dezdar and Ainin, 2012, Ziemba and

	Research	FACTORS THAT DETERMINE THE PERFORMANCE OF TECHNOLOGY – BASED FIRMS IN KENYA.KABURU FRANKLIN KINOTI,2002	Oblak, 2013). Therefore, this factor is considered in the exploratory study for further testing in order to confirm its importance. In the exploratory study, the factors were listed in a questionnaire to be ranked based on their importance in the participants’ point of view. The outcome of the questionnaire shows and confirms that project team competency was important as it was ranked third in the list with a mean value of 4.36. The results are compatible with the secondary data received.
<b>Stakeholders Management</b>	Books	Abouzahra, 2011, Bourne and Walker, 2008, Crawford, 2005, Morris et al., 2006, PMI, 2013, Shenhar and Dvir, 1996	A project’s success or failure is directly linked to its stakeholders’ perceptions (Bourne and Walker, 2008). Poor stakeholder’s management is one of the influencing factors in conducting IT projects (Yeo, 2002). Stakeholders management is an important success factor (Abouzahra, 2011, Bourne and Walker, 2008, Crawford, 2005, Morris et al., 2006, PMI, 2013, Shenhar and Dvir, 1996).The outcome of the questionnaire shows and confirms that stakeholders management was important and it was ranked eighth in the list with a mean value of 4.15. According to the secondary data which is in line with the questionnaire results Stakeholders and their interests may be affected by projects or project outcomes; thus, from an ethics and sustainable management perspective, they must not be ignored in project management process. Since any project has many stakeholders, whose interest may be related or in conflict, the project manager should manage the stakeholders’ needs and assure
	Journal	Discenza, R. & Forman, J. B. (2007). Seven causes of project failure: how to recognize them and how to initiate project recovery. Paper presented at PMI® Global Congress 2007—North America, Atlanta, GA. Newtown Square, PA: Project Management Institute.	

			their satisfaction in order to increase the chance of the project success.
<b>Partners and Suppliers Management</b>	Books	Al-Mashari et al., 2003, Alaskari et al., 2013, AlShitri, 2008, Annamalai and Ramayah,2013, Ifinedo et al., 2010, ISO9000, 2000, Kansal, 2007, Zhang et al., 2003	Partners and suppliers' management plays a significant role in project success, as organizations select their partners and suppliers based on their quality rather than only on their price. Price has no meaning without a measure of the quality being purchased (Deming, 2000). The IT partners and suppliers should communicate well with the organization, and their personnel should have sufficient experience in implementing IT projects with high quality services which may enhance the project success, including adequate training with suitable formal documents (user manual, operation guide, etc.).The outcome of the questionnaire shows and confirms that partners and suppliers management was important and it was ranked as seventh in the list with a mean value of 4.18 which strongly supports the secondary data as outlined in the literature review and by Al-Mashari et al., 2003, AlShitri, 2008, ISO9000, 2000, Kansal, 2007, Zhang et al., 2003
	Research	APPLICATION OF EXTENDED TECHNOLOGY ACCEPTANCE MODEL IN PREDICTING E-PROCUREMENT UTILIZATION IN INDEPENDENT COMMISSIONS IN KENYA By SANG JEPKOECH JOYCE 2014	
<b>Training and Education</b>	Books	Al-Mashari et al., 2003, Aladwani, 2001, Alaskari et al., 2013, Annamalai and Ramayah,2013, Finney and Corbett, 2007, Kumar et al., 2002, Mandal and Gunasekaran, 2003,Nasir and Sahibuddin, 2011, Robey et al., 2002	Training and education is a critical part of IT project implementation and has been referenced by a considerable number of citations (Bukamal and Wadi, 2016, Dezdar and Ainin, 2011c). It is important to have a detailed plan for the

		<p>training facilities and resources. Specific IT skills training should be given to the project team members, and a formal training programme with customized materials should be developed to meet the users' requirements before the implementation of the IT project. Training and education should be a continuous process in order to keep both the project team members and the end users up to date with the required technical and business skills in order to enhance the success of the new projects. Training and education is an important success factor, as seen in the literature review Al-Mashari et al., 2003, Aladwani, 2001, Finney and Corbett, 2007, Kumar et al., 2002, Mandal and Gunasekaran, 2003, Robey et al., 2002. The outcome of the questionnaire shows and confirms that training and education is important and it was ranked sixth in the list with a mean value of 4.31 which conforms to the journal, research and books reviewed in the secondary data.</p>
--	--	--



## 5.4 Conclusion of the Study

The main contributions of this study are threefold. One is contribution to knowledge and theory, or similar research in project management and strategic planning in further investigating and understanding the constructs better based on the framework used. The other is how much this work can lead to methodological understanding of similar phenomena and can be repeated or used as a guide in a different setting and environment. The last is how much this knowledge can be used in practice and in teaching and learning of professionals about managing effective information technology projects in organizations. In terms of knowledge and theoretical contribution, this study has adopted an existing framework that combined two theoretical perspectives; the critical success factors and project success criteria. The study has shown that both components could be used to complement each other.

Indeed, this study can be used as a guide for further investigation and verification to strengthen the theory of Information Technology project success. In addition, this study has also provided constructive insights into the determinants interrelationships. Not many researches can be found that examined the relationships between critical success factors (Abdullah, 2013).

Investigating the interrelationships between the determinants of ict project success is important to identify the possibilities of the factors being causally linked, which may indicate that one can reinforce the other. For example, the findings show that the influence of top management support is significant on both strategic planning and project management, and the influence of project management is significant on project team competency and stakeholder's management. By exploring the relationships between the determinants, a better understanding of the project success can be enhanced. Further examination of the critical success factors indicate that these factors are actually interrelated. The findings show that the influence of top management support is significant on strategic planning, and on project management. Also, the results suggest that the influence of partners and suppliers management is significant on training and education. Furthermore, the findings show that the influence of communication management is significant on project management, on project team competency, and on stakeholder's management. With regard to project management, the results suggest that the influence of PM is significant on project team competency, and on stakeholder's management. Therefore, it is concluded that the links among the success factors should not be discounted in order to enhance the project success. This section has re-

emphasized the achievement of the research objectives in this study. By answering the research questions, the current study has provided additional insight to the body of knowledge concerning IT project success, particularly in understanding the pertinent factors that influence project success in African organizations from the senior management perspective. The overall findings confirm that organizational factors must not be ignored at any stage when implementing IT projects.

Another contribution, Davis (2016) asserts that there is a lack of research on project success from the senior management stakeholder's perspectives. Therefore, this study has addressed this gap by considering the senior management's perspectives. Another anticipated contribution of this study to knowledge is that it fills a gap in the literature on developing countries by emphasizing the African context. Furthermore, the research validated various constructs used in the framework, so there is a theoretical contribution that can be used to examine other emerging Information technology innovations. In terms of methodological contribution, the measurement model that are verified and tested in this study can be used as a guide or instrument by other researchers who are investigating these constructs in a different context or setting. While the research is most relevant in the context of Africa based organizations, similar research in a different culture and setting may indicate whether the findings are also applicable elsewhere. These constructs are, indeed, highly important to the study of information communication technology project success as well other areas in the management science. This research will help to reduce the gap and provide a stimulus to other researchers to investigate the nature of project success in different countries. Lastly, in contributing to practice, the outcomes of this research are expected to benefit and guide organizations in Kenya, as well as other public organizations in developing countries in the region to effectively manage IT projects. Information technology are partly the key to successful organizations. The use of effective information technology begins with effective IT projects. Countries with limited resources, cannot afford the risk of failure. This research therefore, provide a model that is closely relevant to these countries. The lessons that are highly valuable, as the outcome of this research are that, while projects must be managed according to the common triple constraint factors (cost, time and scope), the key success is highly attributable to the extent to which it benefits the organization in the long term. In this regards, the choice of chief technology officer is also seen as highly crucial in ensuring success. This is reflected in the finding that shows project success has strong link to top management support. The outcome of this research can be shared and applied in the training

syllabus of managers to indicate the importance and relevance of each of the factors to project success.

Based on the first objective, the study concludes that top management supports and collaborates with the project manager, team to ensure project success. Further, the top management coached and helped project teams to handle project hurdles or obstacles. Supplementary to this, the top management did not sufficiently delegate power to the project manager and project teams to enhance project performance. Additionally, projects with inadequate top management support rarely survive their timelines or are successfully completed. As well, the study concludes that there are clear communication channels between top management, project manager and project teams. Moreover, the study concludes that the top management was committed and provided resources and leadership to enhance project success. Likewise, the study concludes that the project manager's transformational leadership is very critical in achieving project success. The study further concludes that by the project manager possessing both good relations, technical and administrative skills are not enough to lead to project success.

On project culture, the second objective, the study concludes that the project team suggestions or opinions to improve the work environment were taken seriously. Nevertheless, the study also concludes that organization culture and policies neither supported project teams nor lowered staff turnover. Also, the study concludes that project culture encourages the implementation of project objectives. The study further concludes that the organization promoted teamwork among the project teams to enhance project performance.

On the third objective, the study concludes that the organization did not allow for flexibility in project schedules or scheduling. On the same note, the study concludes that the project teams with greater control of schedules were not necessarily more engaged and satisfied. Project performance can be enhanced by using flexible project schedules increased focus on project and empowerment project teams to manage project activity durations. The study also concludes that project schedules took gender disparity into consideration and equal work proportions were allocated to either gender. Similarly, the study concludes that slow decision making causes project delays and problems of time performance. The study also concludes that lack of adequate project team involvement causes project implementation delays.

## 5.5 Recommendation of the Study

The study recommends that the top management should prioritize supporting and collaborating with the project manager and team to foster project success. Further, the top management should continue building the capacity of project teams to handle various project challenges and obstacles they may encounter. The top management should realize the importance of delegating responsibility to the project manager and teams in order to enhance project performance. Additionally, the top management should provide sufficient support and resources for project implementation to realize project benefits or success. Further, the study recommends that communication channels should be more open between top management, project manager and project teams. Likewise, the project should continually be empowered to enhance his/her leadership which is very critical very in achieving project success. The study also recommends that the project manager should possess good leadership, technical and administrative skills to ensure there is a better work environment, project team competency, reliable communication and team relations.

On project culture, the study recommends that the project team suggestions or opinions to improve the work environment should always be taken into consideration. Organizational policies should be geared towards supporting project performance and project team support. Project culture should also be enhanced to continue supporting the implementation of project objectives. Furthermore, project work environment, culture and core values should further ensure project teams are committed to project performance. Team work should be prioritized because they form the critical basis for project success and performance. Similarly, the organization should be mindful that project success depends on project manager, project teams and the kind of project culture they create.

On the third objective, the study recommends that the organization should allow for flexibility in project schedules and that the project teams should have greater control of schedules to be more engaged and satisfied. Similarly, project leave policies should be scheduled in such a way to increase the impact of performance by reducing work related stress. Similarly, flexible project schedules should increase project team productivity. The organization should consider using compressed and alternative project schedules to motivate project teams to enhance project performance. To achieve project performance, the organization should use flexible project schedules, increase project team empowerment and

better control of project activity durations. The project schedules should continue taking into consideration gender disparity and equal work proportions to either gender. Similarly, there should be enhanced decision making to avoid project delays and problems of time performance.

### **5.6 Suggestions for Further Studies**

The study recommends that a longitudinal study be conducted on the influence of project team commitment on project performance in project based organizations in Kenya. The study on the influence of project team commitment on project performance will enable the findings of this study to be generalized and replicated. This will be useful in providing a more reliable reference material for other researchers interested in the area of project performance.

## REFERENCES

Doherty, N.F., King, M. and Marples, C.G., 1998. Factors Affecting the Success of Hospital Information Support Systems. Loughborough: Loughborough University Business School.

Delone, W.H. and Mclean, E.R., 2002-last update, Information Systems Success Revisited. Retrieved Nov 22<sup>nd</sup> 2018, from

<https://pdfs.semanticscholar.org/3bf0/dc52885a44a69a522fbbbe2ad6ea72215c56.pdf>

David Gichoya (2005) Factors Affecting the Successful Implementation of ICT Projects in Government.

Retrieved Nov 22<sup>nd</sup> 2018, from <http://www.ejeg.com/issue/download.html?idArticle=70>

Heeks, R., 2002. Information Systems and Developing countries: Failure, success, and local improvisations. Retrieved Nov 22<sup>nd</sup> 2018, from

<http://unpan1.un.org/intradoc/groups/public/documents/NISPAcee/UNPAN015601.pdf>

Might, R. J., & Fischer, W. A. (1985). The Role of Structural Factors in Determining Project Management Success. *IEEE Transactions on Engineering Management*, 32(2), 71-77.

Moran, C.R., 1998. Strategic information technology planning in higher education: A new roadmap to the 21st century academy. Bolton, MA: Anker Publishing Company, Inc.

Riley, T.B., 2000. Electronic governance and electronic democracy: Living and working in the wired world. London: Commonwealth Secretariat.

Saul, F. and Zulu, C., 1994. Africa's survival plan for meeting the challenges of Information technology in the 1990s and beyond. *Libri*, 44(1), pp. 77-94.

Sauer C. (1993) why information systems fail: A case study approach. Alfred Walker, Henley-on-Thames, Oxfordshire; pp. 43-44.

Discenza, R. & Forman, J. B. (2007). Seven causes of project failure: how to recognize them and how to initiate project recovery. Paper presented at PMI® Global Congress 2007—North America, Atlanta, GA. Newtown Square, PA: Project Management Institute.

Kerzner, H. (2006). Project Management: A systems approach to planning, scheduling and controlling. (9th Ed.). Hoboken, New Jersey: John Wiley & Sons, Inc.

Field, Tom. (1997). “When bad things happen to good projects”, CIO magazine, Oct 15, 1997, Vol. 11, 2; pg. 54, 6 pgs.

Hulme, Martyn R. (1997). “Procurement Reform and MIS Project Success”, Journal of Supply Chain Management, winter 1997; 33, 1; pg 2.

Baker, Bud. (1997). Great Expectations: Turning Failure into Success – and Vice Versa. PM Network, May 1997, pp. 25 – 28.

O’Brochta, Michael. (2002). “Project Success – What Are the Criteria and Whose Opinion Counts?” Proceedings of the Project Management Institute Annual Seminars & Symposiums, October 3 – 10, 2002, San Antonio, TX.

Leicht, Michael. (1999). “Managing User Expectations.” University of Missouri St. Louis e-publication. Retrieved Nov 12<sup>th</sup> 2018, from [http://www.umsl.edu/~sauterv/analysis/user\\_expectations.html](http://www.umsl.edu/~sauterv/analysis/user_expectations.html)

Hoffman, Thomas (2003) “Value of Project Management Offices Questioned”, Computerworld. Retrieved Nov 12<sup>th</sup> 2018, from <https://www.computerworld.com/article/2571545/it-project-management/value-of-project-management-offices-questioned.html>

Hoffman, Thomas. (2003). “Corporate Execs Try New Ways to Align IT with Business Units.” Computerworld. Retrieved Nov 12<sup>th</sup> 2018, from <https://www.computerworld.com/article/2572805/it-management/corporate-execs-try-new-ways-to-align-it-with-business-units.html>

Hodgson, Ian. (2002). "Keeping Your Head above Water", Retrieved Nov 9 2018 from <http://www.conspectus.com/2002/november/article19.asp>

King, Julia (2003). "Survey shows common IT woes persist", Computerworld. Retrieved Nov 12<sup>th</sup> 2018 from <https://www.computerworld.com/article/2569760/it-management/survey-shows-common-it-woes-persist.html>

Lewis, Bob. (2003). "The 70-percent failure", InfoWorld. Retrieved Nov 12<sup>th</sup> 2018 from [http://www.umsl.edu/~sauterv/analysis/6840\\_f03\\_papers/frese/](http://www.umsl.edu/~sauterv/analysis/6840_f03_papers/frese/)

Johnson, Jim, et al. (2001). "Collaborating on Project Success." Retrieved Nov 12th 2018, from

[http://www.dsc.ufcg.edu.br/~garcia/cursos/ger\\_processos/artigos/Project%20Sucess.htm](http://www.dsc.ufcg.edu.br/~garcia/cursos/ger_processos/artigos/Project%20Sucess.htm)

Rauch, A., J. Wiklund, G. T. Lumpkin, and M. Frese (2009), 'Entrepreneurial orientation and business performance: Cumulative empirical evidence'. *Entrepreneurship Theory and Practice* 33, 761–787.

Graham, H.T. & Bennett, R. (2001). *Human Resources Management*. 9th Edition England. Pearson Education Limited.

*Predicting and Changing Behavior: The Reasoned Action Approach* By Martin Fishbein, Icek Ajzen

Lavagnon Ika & Jan Saint-Macary (2014) Special Issue: Why Do Projects Fail in Africa?, *Journal of African Business*, 15:3, 151-155, DOI:10.1080/15228916.2014.956635

Esther Opande 'Failed rural ICT projects eat up \$10m in Uganda'

<https://www.theeastafrican.co.ke/business/2560-679876-x47d68/index.html> accessed on 5th December 2018

Marnewick, C., & Labuschagne, L. (2011). An investigation into the governance of information technology projects in South Africa. *International Journal of Project Management*, 29 (1), 661–670.

Moyo, D. (2009). *Dead aid: Why aid is not working and how there is a better way for Africa* . Vancouver, Canada: D&M Publishers.



Richard Heeks (2003) Paper No. 14 Most eGovernment-for-Development Projects Fail: How Can Risks be reduced? Institute for Development Policy and Management Publishers  
Pg 2

Determinants of new product outcome in a developing country: A longitudinal analysis  
International Journal of Research in Marketing, ISSN: 0167-8116, Vol: 3, Issue: 3, Page:  
143-156 Publication Year: 1986

Might, R J and Fisher, W A 'The role of structural factors in determining project  
management success' IEEE Trans. Eng. Manage. Vol EM 32 No 2 (May 1985) pp 71-77

Ralf Müller, Kam Jugdev, (2012), "Critical success factors in projects: Pinto, Slevin, and  
Prescott - the elucidation of project success", International Journal of Managing Projects in  
Business, Vol. 5 Iss: 4 pp. 757 - 775  
<http://dx.doi.org/10.1108/17538371211269040> [accessed Dec 28 2018].

Pinto, J. K. & Slevin, D. P. (1988). Project success: definitions and measurement techniques.  
Project Management Journal, 19(1), 67–72.

Bardach, E. The Implementation Game (MIT Press. Cambridge, Mass., 1977).

Schultz, R. L. and Slevin, D. P. "Implementation and Management Innovation," in  
Implementing Operations Research and Management Science, ed. Schultz, R. L. and Slevin,  
D. P. (Elsevier. New York, 1975), pp. 3-22.

Beck, D. R. "Implementing Top Management Plans Through Project Management," in  
Project Management Handbook, ed. Cleland, D. I. and King, W. R. (Van Nostrand Reinhold.  
New York, 1983), pp. 166-184.

M. J. Ginzberg, "A Study of the Implementation Process." in The Implementation of  
Management Science, ed. Doktor, R., Schultz, R. L. and Slevin, D. P. (North-Holland. New  
York, 1979), pp. 85-102.

Lewin, K. "Group Decision and Social Change," in Readings in Social Psychology, ed.  
Newcomb and Hartley (Holt, Rinehart and Winston. New York. 1952), pp. 459-473.

Manley, J. H. "Implementation Attitudes: A Model and a Measurement Methodology." in *Implementing Operating Research and Management Science*, ed. Schultz, R. L. and Slevin, D. P. (Elsevier, New York, 1973, pp. 183-202.

Alter, S. "Implementation Risk Analysis," in *The Implementation of Management Science*, ed. Doktor, R., Schultz, R. L. and Slevin, D. P. (North-Holland, New York, 1979), pp. 103-120.

Nah, F.F.H., Islam, Z., and Tan, M.: „Empirical assessment of factors influencing success of enterprise resource planning implementations, *Journal of Database Management (JDM)*, 2007, 18, (4), pp. 26- 50

Esteves, J., and Pastor, J.: „Analysis of critical success factors relevance along SAP implementation phases, in Editor (Ed.) *Book Analysis of critical success factors relevance along SAP implementation phases?* (2001, edn.), pp. 1019-1025

Fortune, J., and White, D.: „Framing of project critical success factors by a systems model, *International Journal of Project Management*, 2006, 24, (1), pp. 53-65

Somers, T.M., and Nelson, K.G.: „A taxonomy of players and activities across the ERP project life cycle, *Information & Management*, 2004, 41, (3), pp. 257-278

Dezdar, S., and Ainin, S.: „Examining Successful ERP Projects in Middle-East and South-East Asia, *American Journal of Scientific Research*, 2012, (56), pp. 13-25

Wee, S. 2000. *Juggling toward ERP success: keep key success factors high* [Online].

Buckhout, S., Frey, E., and Nemec, J.: „Making ERP succeed: turning fear into promise, *Strategy and Business*, 1999, pp. 60-73

PMI: „A Guide to the Project Management Body of Knowledge: PMBOK® Guide, in Editor (Ed.): „*Book A Guide to the Project Management Body of Knowledge: PMBOK® Guide?* (Project Management Institute, Newton Square, PA., 2013, 5th edn.)

Zhang, L., Lee, M.K.O., Zhang, Z., and Banerjee, P.: „Critical success factors of enterprise resource planning systems implementation success in China, in Editor (Ed.) *Book Critical*

success factors of enterprise resource planning systems implementation success in China? (IEEE, 2003, edn.)

Kansal, V.: „Systemic Analysis for InterRelation of Identified Critical Success Factors in Enterprise Systems Projects, Contemporary management research, 2007, 3, (4)

Deming, W.E.: „Out of the Crisis? (MIT press, 2000. 2000)

AlShitri, K.I.: „Quality management implementation in IS/IT departments in Saudi Arabian private organizations, University of East Anglia, 2008

Dezdar, S., and Ainin, S.: „Examining Successful ERP Projects in Middle-East and South-East Asia, American Journal of Scientific Research, 2012, (56), pp. 13-25

Ojo, A., Shah, B.P., and Janowski, T.: „Strategic IT Planning for Public Organizations: A Toolkit, Project Deliverable D, 2009, 1

Kumar, V., Maheshwari, B., and Kumar, U.: „ERP systems implementation: Best practices in Canadian government organizations, Government Information Quarterly, 2002, 19, (2), pp. 147-172

Robey, D., Ross, J.W., and Boudreau, M.C.: „Learning to implement enterprise systems: An exploratory study of the dialectics of change, Journal of Management Information Systems, 2002, 19, (1), pp. 17- 46

Finney, S., and Corbett, M.: „ERP implementation: a compilation and analysis of critical success factors, Business process management journal, 2007, 13, (3), pp. 329- 347

Johnson, G., Scholes, K., and Whittington, R.: „Exploring corporate strategy: Text and cases? (Pearson Education, 2008. 2008)

Scott, J.E., and Vessey, I.: „Implementing enterprise resource planning systems: the role of learning from failure, Information systems frontiers, 2000, 2, (2), pp. 213-232

Belassi, W., and Tukel, O.I.: „A new framework for determining critical success/failure factors in projects, International Journal of Project Management, 1996, 14, (3), pp. 141-151

Sekaran, U., 2003. *Research methods for business: A skill building approach*. John Wiley & Sons.

D'Agostino, G., Dunne, J. P., Pieroni, L. (2016). Government spending, corruption and economic growth. *World Development*, 84, 190–205.

Huang, C. (2016). Is corruption bad for economic growth? Evidence from Asia-Pacific countries. *North American Journal of Economics and Finance*, 35, 247–256.

Treisman, D. (2000). The causes of corruption: A cross-national study. *Journal of Public Economics*, 76, 399–457.

Saha, S., Gounder, R. (2013). Corruption and economic development nexus: Variations across income levels in a non-linear framework. *Economic Modelling*, 31, 70–79.

Corojan, A., Criado, J. I. (2012). E-government for transparency, anti-corruption, and accountability: Challenges and opportunities for Central American countries. In Bwalya, K. J., Zulu, S. F. C. (Eds.), *Handbook of research on e-government in emerging economies: Adoption, e-participation, and legal frameworks* (pp. 328–350). Hershey, PA: IGI Global.

Kim, C. K. (2014). Anti-corruption initiatives and e-government: A cross-national study. *Public Organisational Review*, 14(3), 385–396.

Aladwani, A. M. (2016). Corruption as a source of e-Government projects failure in developing countries: A theoretical exposition. *International Journal of Information Management*, 36, 105–112.

ISACA, 2008. *Certified Information Systems Auditor, CISA Review Manual 2009*, ISBN 978-1-60420-046-1 ISACA, Rolling Meadows, Illinois.

MAMPU. 2010. *Panduan Pelaksanaan Pengurusan Projek ICT Sektor Awam*, Surat Arahan Ketua Pengarah MAMPU. 5 Mac 2010.

Morris P.W.G. 2010. Research and the future of project management, *International Journal of Managing Projects in Business*, Vol. 3 No. 1, 2010, pp. 139-146.

Nor'ashikin. 2013. Model Penilaian Pengurusan Skop Projek Teknologi Maklumat dan Komunikasi (ICT) Sektor Awam. PhD Dissertation Universiti Kebangsaan Malaysia, 2013.

Project Management Institute (PMI). 2008. A Guide to the Project Management Body of Knowledge (PMBOK Guide). Edisi ke-4. Newton Squera, Pennsylvania: Project Management Institute.

Project Management Institute (PMI). 2013. A Guide to the Project Management Body of Knowledge (PMBOK Guide). Edisi ke-5. Project Management Institute.

Demir, C. & Kocabas, I. 2010. Project Management Maturity Model (PMMM) in educational organization. *Sosial and Behavioral Sciences* 9:1641-1645.

Jo, P.A. & Berry, M. 2008. The most important success factors for implementation of government projects in developing countries. *Proceedings of PICMET 2008*, pages. 1400-1409.

Developing Business Processes – BPML Best Practices Peter Schimmel, IBM Sterling B2B Integrator Support 29 October 2014 Schwalbe, K. 2010. *Managing Information Technology Projects*. 6th Edition. USA: Course Technology CENGAGE Learning.

Garcia, S., 2005. How standards enable adoption of project management practice. *IEEE Software*. 22 (5), 22–29.

CSeda Cansiz & Fatma Pakdil 2012. A Proposed Business Process Management Model for SMEs, *The Business Review*, Cambridge Vol. 19, Num. 2, Summer 2012.

Google forms Retrieved Nov 22<sup>nd</sup> 2018 from  
<https://support.google.com/docs/answer/2917111?hl=en>

DAVIS, K. 2016. A method to measure success dimensions relating to individual stakeholder groups. *International Journal of Project Management*, 34, 480-493.

FAN, D. Analysis of critical success factors in IT project management. *Industrial and Information Systems (IIS)*, 2010 2nd International Conference on, 2010. IEEE, 487-490

ABDULLAH, Z. S. 2013. Hospital information systems implementation framework: critical success factors for Malaysian public hospitals. Curtin University.

DOHERTY, N. F., KING, M. & AL-MUSHAYT, O. 2003. The impact of inadequacies in the treatment of organizational issues on information systems development projects. *Information & Management*, 41, 49-62.

PENG, G. C. & NUNES, M. B. 2010. Barriers to the successful exploitation of ERP systems in Chinese State Owned Enterprises. *International Journal of Business and Systems Research*, 4, 596-620.

AL-BRAITHEN, M. A. 2010. Understanding the perception of success in the development of an ERP system: an interpretive case study in a Saudi Arabian private organisation. University of Salford.

NASIR, M. H. N. & SAHIBUDDIN, S. 2011. Critical success factors for software projects: A comparative study. *Scientific Research and Essays*, 6, 2174-2186

HUSSEIN, R., ABDUL KARIM, N. S., MOHAMED, N. & AHLAN, A. R. 2007. The influence of organizational factors on information systems success in e-government agencies in Malaysia. *The Electronic Journal of Information Systems in Developing Countries*, 29.

DAVIS, K. 2014. Different stakeholder groups and their perceptions of project success. *International Journal of Project Management*, 32, 189-201.

LOUCHART, E. S. 2012. The changing role of the Chief Information Officer (CIO): an inquiry into the demands, constraints and choices of the CIO. The University of Northampton.

DEZDAR, S. & AININ, S. 2011. The influence of organizational factors on successful ERP implementation. *Management Decision*, 49, 911-926.

NGAI, E. W. T., LAW, C. C. H. & WAT, F. K. T. 2008. Examining the critical success factors in the adoption of enterprise resource planning. *Computers in Industry*, 59, 548-564.

GUNATHILAKA, S., TUULI, M. M. & DAINITY, A. R. Critical Analysis of Research on Project Success, *Construction Management Journals*. Procs 29th Annual ARCOM Conference, 2013

MCLEOD, L. & MACDONELL, S. G. 2011. Factors that affect software systems development project outcomes: A survey of research. *ACM Computing Surveys (CSUR)*, 43, 24.

AL-TAIE, M., LANE, M. & CATER-STEEL, A. 2015. A past to present journey: a critical analysis of the Chief Information Officer role.

HU, Q., YAYLA, A. A. & LEI, Y. Does inclusion of CIO in top management team impact firm performance? Evidence from a long-term event analysis. 2014 47th Hawaii International Conference on System Sciences, 2014. IEEE, 4346-4355

DEZDAR, S. & AININ, S. 2011. ERP systems implementation success: A study on Iranian organizations. *International Journal of Current Research and Review*, 3, 78-100.

## **APPENDIX I: LETTER OF INTRODUCTION**

ALLAN KAHIU  
P.O BOX 345 -00605,  
UTHIRU,  
KENYA

3<sup>rd</sup> January 2019

Dear Respondent,

### **RE: LETTER OF INTRODUCTION**

My name is Allan Kahiu Muchene and i am currently a student at the University of Nairobi Chiromo Campus (P54/6731/2017) undertaking a research in partial fulfillment of the requirements for award of a Master of Science Degree in Information Technology Management. I am carrying out a research on “Determinants of Information Communication Technology Project Performance in Africa”

I am kindly requesting for your assistance in filling out the questionnaire attached. Please fill it in to the best of your knowledge. The information you are providing will be treated with the utmost confidentiality and will be used for the purpose of research study only.

NOTE: Please tick (✓) where applicable and give the appropriate answers where necessary.

Kindly reach out to me in case of any clarification.

Yours Sincerely,  
Allan Kahiu



## APPENDIX II: RESEARCH QUESTIONNAIRE

You are kindly requested to answer all questions in all the sections

Kindly tick (✓) against the correct response

### SECTION ONE: RESPONDENTS' PROFILE

a) Kindly state your gender

Male ( )

Female ( )

b) In which age category do you belong?

i. 20 – 25 Years ( )

ii. 26 – 30 Years ( )

iii. 31 – 35 Years ( )

iv. Above 35 Years ( )

c) What is your highest academic qualifications?

Secondary Level ( )

College Level ( )

University Degree ( )

Postgraduate Level ( )

d) What position do you hold during project implementation?

Senior Manager ( )

Manager ( )

Client IT System Support ( )

Client Billing End Users ( )

Client customer management team ( )

Project Manager ( )

e) How many years of working experience do you have?

Less than 1 year ( )

5 – 10 years ( )

1 – 5 years ( )

10 years and above ( )

The statements in the following sections seek responses on a 5-point scale as follows:

1: Strongly Agree, 2: Agree, 3: Indifferent, 4: Disagree, 5: Strongly Disagree

Please answer based on the successful projects undertaken by Indra Limited.

**SECTION TWO: TOP MANAGEMENT SUPPORT**

Statements of Top Management Support	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
i. Top management supports and collaborates with project manager, team to ensure project success					
ii. Top management coaches and helps project teams to handle project hurdles or obstacles					
iii. Top management delegates power to project manager and teams to enhance project performance					
iv. Projects with inadequate top management support rarely survives					
v. There are clear communication channels between top management, project manager and project teams					
vi. The top management is committed and provides resources and leadership to enhance project success					
vii. Project manager’s transformational leadership is very critical in achieving					

project success					
viii. Project manager should possess both good relations, technical and administrative skills to lead a project to success					

### SECTION THREE: ORGANIZATIONAL CULTURE

Statements on Organizational Culture	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
i. Project team suggestions or opinions to improve the work environment are taken seriously.					
ii. The organization culture and policies supports project teams and lowers turnover.					
iii. Project culture encourages implementation of project objectives					
iv. The work environment, culture and core values make project teams committed project performance					
v. The organization promotes teamwork among the project teams to enhance project performance					
vi. Project success depends on project manager, project teams and project culture they create.					

#### SECTION FOUR: PROJECT MANAGEMENT

Statements on Project Management	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
i. Scope of each IT project is clearly established.					
ii. A detailed project plan (i.e., what activities to cover at what stage) with measurable results is provided for each IT project					
iii. The responsibility for all parts of each IT project is assigned					
iv. The activities across all affected parties are coordinated properly for each IT project					
v. Each IT project progress is reviewed on a periodic basis					

#### SECTION FIVE: PROJECT SUCCESS

Statement on Project Success	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
i. IT projects are completed on-time					
ii. IT projects are completed on-budget					
iii. IT projects are completed with all features and functions as initially specified					

iv. IT projects meet the needs of the project stakeholders					
v. IT project achieve its business goals and purpose					
vi. End products of IT projects are used					

SECTION SIX: STRATEGIC PLANNING

Statements on Strategic Planning	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
i. IT capabilities are constantly reviewed against strategic goals.					
ii. IT plans are redesigned as required to meet evolving conditions					
iii. Strategic IT planning is a continuous process					
iv. Written guidelines exist to structure strategic IT planning in our organization					
v. Strategic IT planning includes inputs from all functional areas					

SECTION SEVEN: COMMUNICATION MANAGEMENT

Statements on Communication Management	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree

i. There is effective communication between project team members and users					
ii. There is effective communication amongst functional departments					
iii. There is effective communication to get the users' requirements and comments.					
iv. There are enough communication channels (presentations, newsletter, etc.) to inform users about the objectives of the IT projects.					
v. IT projects progress are communicated amongst stakeholders					
vi. All stakeholders and team members willingly keep each other informed					

SECTION EIGHT: PROJECT TEAM COMPETENCIES

Statements on Project team competencies	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
i. Each IT project has a well experienced project manager who is dedicated to the project					
ii. A variety of cross-functional team members are selected					
iii. The people selected for each IT project team have the best business and technical knowledge					

iv.	Each IT project team is empowered to make decisions relating to the project					
v.	Each IT project team is working on the project full-time as their only priority					

SECTION NINE: STAKEHOLDER MANAGEMENT

Statements on Stakeholder Management	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
i. Structured stakeholder analysis is conducted on a regular basis to understand their expectations, identify synergies and risks					
ii. Stakeholders' relationships are managed along and across IT projects					
iii. IT projects requirements are thoroughly understood, they reflect stakeholder needs and the capability of the organization					
iv. Stakeholders are recognized for their contribution to efficient IT projects					
v. The roles and responsibilities of all stakeholders are identified					

SECTION TEN: PARTNER AND SUPPLIER MANAGEMENT

Statements on Partner and supplier Management	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
i. The partners & suppliers communicate well with our organization.					
ii. The partners & suppliers personnel have enough experience for implementing IT projects					
iii. The partners & suppliers provide quality services					
iv. The training offered by the partners & suppliers is adequate to increase the user's proficiency in each IT project usage.					
v. The partners & suppliers provide suitable formal documents (user manual, operation guide, etc.) required for each IT project.					
vi. IT product/service quality is regarded as the most important factor in selecting suppliers.					
vii. Long-term cooperative relations with partners and suppliers are established					

SECTION ELEVEN: TRAINING AND EDUCATION



Statements on Training and Education	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
i. Specific IT skills training is given to team members in all IT projects					
ii. Specific user training needs were identified early in the implementation of each IT project					
iii. A formal training program has been developed to meet the requirements of each IT project users					
iv. Training materials have been customized for each specific job					
v. Employees are tracked to ensure that they have received the appropriate training					
vi. Our organization provides regular training sessions					
vii. The resources for education and training have been put in place					
viii. Education and training are encouraged and supported					