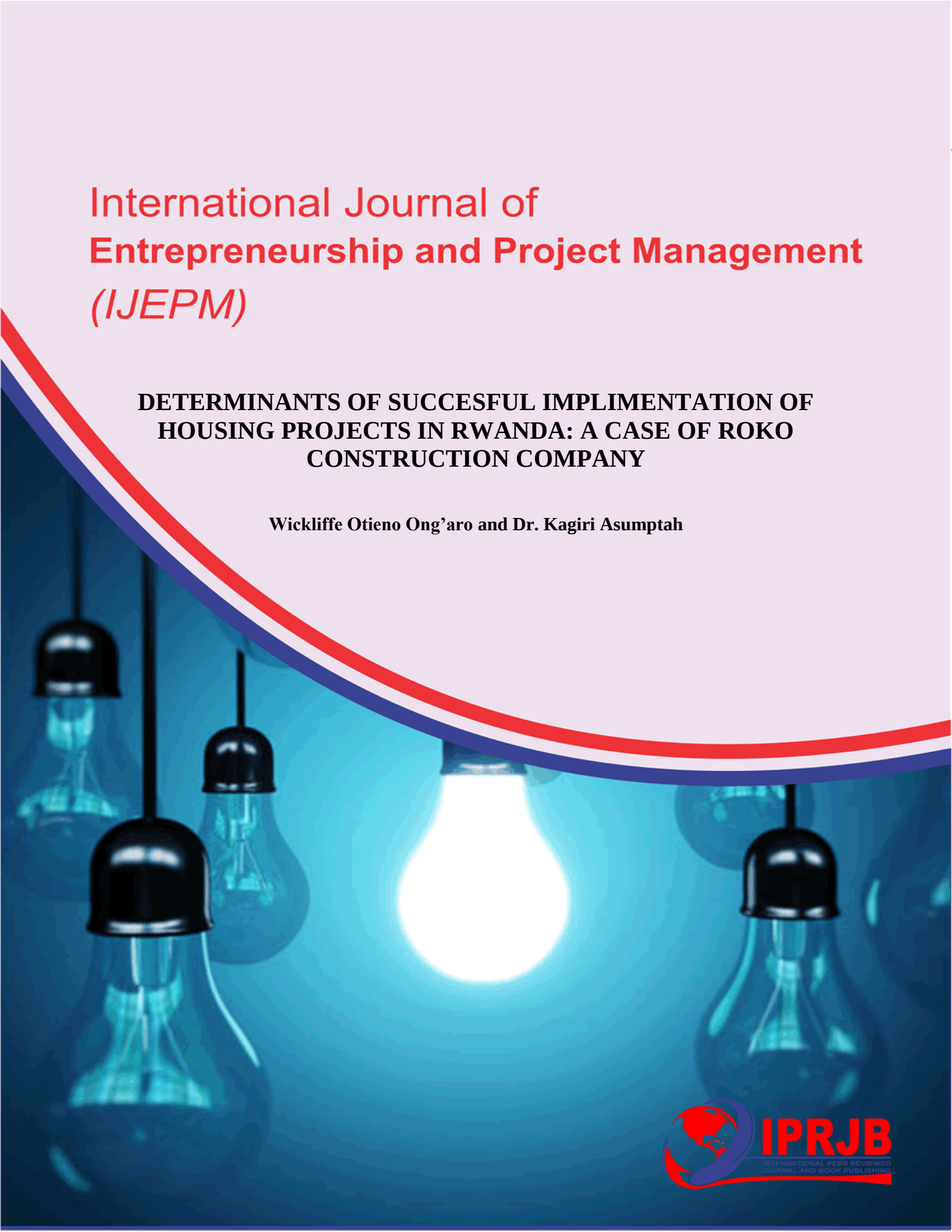
International Journal of
Entrepreneurship and Project Management
(IJEPM)

DETERMINANTS OF SUCCESFUL IMPLIMENTATION OF HOUSING PROJECTS IN RWANDA: A CASE OF ROKO CONSTRUCTION COMPANY

Wickliffe Otieno Ong'aro and Dr. Kagiri Asumptah



IPRJB
INTERNATIONAL PEER REVIEWED JOURNAL AND BOOK PUBLISHING

International Journal of Entrepreneurship and Project Management
ISSN 2518-2838 (Online)
Vol.2, Issue 2 No.5, pp 69 - 85, 2017

www.iprjb.org

DETERMINANTS OF SUCCESFUL IMPLIMENTATION OF HOUSING PROJECTS IN RWANDA: A CASE OF ROKO CONSTRUCTION COMPANY

1* Wickliffe Otieno Ong'aro

*Post graduate student, Jomo Kenyatta University of Agriculture And Technology

*Corresponding Author's Email: ongaroviv@gmail.com

2* Dr. Kagiri Asumptah

Lecturer, Jomo Kenyatta University of Agriculture and Technology

ABSTRACT

Purpose: The purpose of this study will be to examine determinants of successful implementation of housing projects in Rwanda.

Methodology: In this study, descriptive research design was chosen as it allows for the exploration of relationship between the variables. It adopted a case study survey. The target population for the study was ROKO employees who were directly involved in five housing project development currently being carried out by ROKO in Kigali city. The sample size was 182 employees. Primary data was collected using structured questionnaires. Data from questionnaires was coded and logged in the computer using Statistical Package for Social Science (SPSS V 21.0). Descriptive statistics such as percentages, means and standard deviation were used to describe the factors influencing implementation of housing construction projects.

Results: The findings showed that top management, Communication channels, staff competency and project planning have a positive and significant effect on successful implementation of projects.

Unique contribution to theory, practice and policy: The study also recommended that the project leadership in relaying information to the project team should use effective channels of communication such as meetings and memos.

Key words: *determinants, project implementation, top management, staff competency, communication channel, project planning*

1.0 INTRODUCTION

1.1 Background of the Study

The construction industry world over has experienced tremendous growth owing to increased demand for infrastructural facilities and housing, (Kivaa, 2008). Construction is dated back to the history of humanity. It has evolved over centuries from dwelling in caves to skyscrapers and of late to intelligent buildings that perfectly respond to stimuli in the environment, (Kehinde & Mosaku, 2006). Building practice has really changed to respond to the dynamic nature of human needs and progress. Korir (2013) observes that the adherence to the contract scope of work and contract sum is elusive in the construction industry. Cost and schedule overruns are very common in the construction industry. Githenya and Ngugi (2014) provide evidence that despite training of consultants and contractors in the construction industry, the construction projects still do not meet key performance criteria.

A manifestation of construction project failure is project cost overruns, delayed completion period and poor quality of project deliverables. These factors have resulted to collapsed buildings, high cost of maintaining buildings, poor building designs, dissatisfied clients and nonfunctional buildings, (Kogi, 2013). Building design and construction involve various professionals partnering to develop a facility over a short period (Anumba, 2006). The building industry may be divided into three major phases: the design phase, the construction phase and the operation phase, (Horsely, France & Quater, 2003). Most decisions are made in the design stage to meet the needs of the client. The construction phase is the most capital intensive phase and actualizes the building. The operation phase accounts for the longest period of the life of the building. Building involves a system that defines the procedure and standards for all the construction phases of the building process. The procedures outline the responsibilities and interaction among the construction industry professionals. These are engineers, builders, architects, landscapers, consultants, quantity surveyors, land surveyors, and estate managers.

The cost and schedule performance are the primary measures of project success. A project is said to be successful if it is completed within planned time and cost. As global populations swell, particularly in urban areas, sustainable housing development has become a major worldwide initiative. In September 2000, the United Nations (UN) conference developed eight Millennium Development Goals (MDGs) which provide countries around the world with a framework for development, as well as time-bound targets by which progress can be measured. Goal four of the eight MDGs is to ensure shelter and exclusion which encompasses the targets of 2020, to achieve a significant improvement in the lives of at least 100 million slum-dwellers, (Ocampo, 2006). Goal four indicates that there are considerable and continuous affordable housing challenges facing the world's developed and developing countries. Developing countries are faced with the problem of scarce project resources. Construction has an important role in the economy of many countries and especially developing countries. The construction industry contributes to the GDP and employment rate of many countries and for this reason it is considered vital for the economic development of any nation, (Olwale & Sung, 2010). The construction industry is one of the most used examples of project based industries. Housing building projects particularly represent one of

the largest sectors of the construction industry in the most developing economies of the world, (Ahadzie et al., 2008).

Critical success factors are those elements that must be completed in order for the project to be considered complete. Success is defined in the context of project as the art of gaining consensus from a group of people on the definition of good art, (Jugder & Muller, 2005). The project management literature agrees that there are two components of project success. First component: project success factors, elements of a project that can be influenced to increase the likelihood of success; these are independent variables that make success more likely; second component project success criteria, the measures by which we judge the successful outcome of a project; these are dependent variables which measure project success, (Jugder & Muller, 2005). Project success criteria vary from project to project. What is acceptable in one project without impact on perceived success is failure in another project.

The success of each project relies on the implementation phase of the project. The implementation phase is the longest phase in the project life cycle. Project Implementation is the process whereby "project inputs are converted to project outputs". This may be looked at as: Putting in action the activities of the project as well as putting into practice what was proposed in the project document (i.e. transforming the project proposal into the actual project). This involves management of the project or executing the project intentions. Implementation success deals with the issues of how to succeed through a project implementation. It covers aspects such as: project success and failure definitions, problems and outcomes, critical success factors and risk management. A large number of projects around the world fail resulting into loss of millions of dollars for different organizations and governments. This persisting challenge has led many project management professionals to attempt to identify critical success factors that need to be tackled for successful project outcome. The factors associated with project success are different for different industries. When these factors are given proper importance they can transform a project. If an implementation team takes time to create tangible, achievable and measurable critical success factors (CSF's) and every decision made during the execution of the project is defined and managed based on these CSF's then the project implementation was a success, (Meredith et al, 2012).

1.2 Statement of the Problem

Tabish and Jha (2011) stated that modern public housing construction projects involved multiple stakeholders such as consultants, contractors and subcontractors, construction managers and specialists from different disciplines. With such a multi-agency work environment, it was natural to have a clash of objectives and interests among the different stakeholders. They further observed that the objective of public project management was to ensure the success of a project which not only involved managing the schedule, cost, and quality, but also satisfying a number of other performance criteria. According to Aibinu and Jagboro (2002), a major criticism facing the-construction industry especially in the developing economies like Nigeria and Kenya, is the growing rate of delays in project delivery.

Kogi (2013) established that project cost overrun is a persistent problem in the construction industry and recommended that measures be taken to control project costs. Gacheru (2015)

attribute building collapse to poor designs, non-compliance to specifications, cost cutting by contractors, use of substandard material, unqualified technicians, poor or lack of quality control and incompetent contractors. A study of major projects in Kenya has shown that almost all projects suffer from poor quality deliverables, schedule and cost overruns (Kibuchi, 2012). Githenya and Ngugi (2014) established that project control measures significantly determined the implementation of housing projects in Kenya with a correlation coefficient of 76.6 per cent. The study recommended that project managers take adequate control measures over every aspect of the project.

Rwanda is the most densely populated and fastest growing country in Africa with a growth rate of 10.7%. The country's total population is currently 11.88 million, (NISR, 2016), of which about 1 million live in Kigali City. The population in Kigali City is expected to increase to about 3million by 2020. Attracted to the growing economic opportunities, people from the rural areas are moving to the City. According to the report released by Kigali City Authority (2014), about 50 per cent of Kigali residents live in overcrowded, low-quality houses, according to a recent report detailing the city's housing needs and opportunities for investors in the sector. It further states that there is a shortage of over 400,000 houses, meaning many city dwellers live in unplanned neighbor hoods. The report says that according to the 2011 census, the city has only 223,000 housing units, calling for heavy investment in the sector to satisfy demand. It was also discovered that most houses in the city are illegal and are bound to be demolished any time and that 108,903 of existing houses do not meet the minimal habitable standards.

Despite the significant development of project management Principles in recent years, there are still a large proportion of projects that fail or that are not classified as being successful. Many projects have been and will still be undertaken by different organizations or governments in the world, be it expansion projects or process change projects. It makes sense then, unless some form of intervention occurs, that a large number of future projects could still be unsuccessful. Every stakeholder in any project wants it to be a success (Wachira, 2013).

1.3 Objectives of the Study

The main objective of this study was to examine determinants of successful implementation of housing projects in Rwanda.

The study was guided by the following four objectives:

1. To assess how top management support influence successful implementation of housing projects in Rwanda.
2. To determine the influence of communication system on successful implementation of housing projects in Rwanda.
3. To establish the extent to which staff competency influence successful implementation of housing projects in Rwanda.

4. To assess the extent to which project planning influence successful implementation of housing projects in Rwanda.

2.0 LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Goal-Setting Theory of Motivation

The theory was developed after several years of research by Latham and Locke. The theory postulates that the most effective performance results are when goals are specific and challenging. The theory predicts that commitment to attain goals is created by using specific and challenging goals to evaluate performance and to attain feedback on results.

Latham and Locke (2002) explained three moderators that show the success of goal setting. The first moderator is the importance of the expected outcome when goals are attained. This was meant to create agility in the human resource. Self-efficacy is a moderator that defines one's ability to achieve goals. The last moderator is commitment to others with a promise to achieve goals. The theory asserts the need to set group, individual and learning goals to improve on performance on goals. Goal setting is a means to sustain performance. The theory found that individuals with set specific and challenging goals performed better than others with amorphous goals, (Latham, 2003).

2.1.2 Theory of Project Management

Koskela and Howell (2002) explored the theoretical foundation of project management as espoused in the PMBOK by PMI. The foundation is divided into a theory of project and a theory of management. The theory of project is provided by the transformation view on operations. The transformation view conceptualizes a project as a transformation of inputs to outputs. The theory explains the existence of a number of principles by which a project can be managed. The principles suggest, for instance, decomposing the total transformation hierarchically into smaller transformations, tasks and minimizing the cost of each task independently. Koskela and Howell (2002) view management to be explained by three theories; management-as-planning, the dispatching model and the thermostat model. In management-as-planning, operational level management is seen to consist of the creation, revision and implementation of plans. Management-as-planning views a strong causal relationship between the actions of management and outcomes of the organization. The dispatching model assumes that planned tasks can be executed by a notification of the commencement of the task to the task executor. The thermostat model is the cybernetic model of management control that has the following components: there is a standard of performance; performance is measured at the output; the variance between the standard and the measured value is used to correct the process to meet the standard value (Koskela & Howell, 2002). Project management is a cycle that views a project life cycle to consist of project initiation, project design, project planning, project implementation, project monitoring and control and project closure (PMI, 2013). In the context of the current study, the county construction project management undergoes transformation through a life cycle. The projects are initiated, designed and planned and implemented. Project inputs that facilitate the execution of the county

construction projects are in form of funds they get from the project financiers. Project finances are supposed to be used effectively to enable successful implementation of the county construction projects. The completion of the project is dependent on the achievement of the projected outputs as illustrated by the project management theory.

2.2 Empirical Review

Cohen (2009) established that the success or failure of a project is dependent on the top management support. Kwak and Ibbs (2002) established that World Bank Projects frequently fail to achieve their goals due to several problems that could be termed 'managerial' and 'organizational'. The challenges stated by the study are imperfect project design, poor stakeholder management, delays between project identification and start-up, delay during project implementation, cost overruns and coordination failures.

Ika, Diallo and Thuillier (2012) identified five critical success factors (CSFs) for World Bank projects' success. These CSFs are; monitoring, coordination, design, training, and institutional environment. The study termed the five factors World Bank project supervision CSFs. The research established that there is significant positive relationship between each of the five CSFs and project success. Ika et al (2012) recommended that project supervision be refocused from demonstrating results to the much needed managing of objectives for results in order to meet project, program and development goals of the project (Andersen, Grude & Haug, 2009). Too and Weaver (2014) argue that organizations can only create value in investment in projects through establishing clear links between the project outputs and the requirements of the organization's business strategy. Too and Weaver (2014) explain that organizations are better placed to realize their investment in projects and achieve the value defined by their business strategy if they have a structure in place for aligning the project deliverables with their organizational goals.

Rajhans (2012) undertook a study on" effective organizational communication: a key to employee motivation and performance". The study provided evidence that organizational communication plays a vital role in employee motivation and performance as real changes are taking place in modern organizations which confront the new reality of tighter staffing, increased workloads, longer hours and a greater emphasis on performance, risk-taking and flexibility. Today's organizations are run by multi and cross functional teams which show little tolerance for unquestioned authority. To deal with this situation, the art of persuasion and the effort to find the correct emotional match with your audience is necessary. Oyetunde and Oladejo (2012) in a study titled "communication approach and firms performance: appraisal of Nigerian Bottling Company (CocaCola), Ilorin-Nigeria" submitted that research findings no doubt have validated the synerginous relationship between communication approach and efficient performance of Nigeria Bottling Company, Ilorin plant.

Trivellas and Reklitis (2014) sought to investigate the association of leadership roles' competencies, managerial effectiveness profile with gender and job outcomes (job satisfaction and performance). The study also sought to establish the influence of leadership competencies on individual effectiveness of managers and the course for action toward managerial excellence. They used a sample of 132 male and female managers in Greek firms to measure both leadership roles'

competencies and managerial effectiveness. Structured questionnaires were used to collect data. The study established that managers characterized with high levels of job performance excel in practicing all leadership competencies while gender does not exert significant impact on job performance. They found that leadership competencies associated with the innovator, director and mentor roles contribute most to managerial effectiveness hence specific directions for managerial action need to be revived.

Kibuchi (2012) undertook a study on how human factors contribute to the achievement of project goals such as quality, cost, time, client satisfaction and environmental sustainability. The study provided evidence that cost overrun, delayed completion period and poor quality exist in the construction industry in Kenya. The study was focused on the mental side of construction management and not the technological side of the enterprise. The study administered questionnaires to building consultants, contractors, and developers selected using a random sampling procedure. The study used both qualitative and quantitative methods to analyze data collected. The study used a cause effect regression analysis to find out if a relationship exists between human factors and performance by construction participants. The study established that there exist strong relationships between most of human factors that had been identified and project performance by project participants. Appreciation of members of staff by firm's supervisors showed the strongest correlation with R2 = 0.903, followed by appreciation of members of staff by team members with R2 = 0.898 while salary came third with R2 = 0.89.

Jung and Joo (2011) also assessed a building information modelling (BIM) framework focusing on the issues of practicability for real-world projects. The study purposed to enhance the effectiveness of construction projects throughout their lifecycle. A thorough literature review of computer-integrated construction (CIC) and BIM was performed so as to interpret BIM from a global perspective. The purpose of establishing a framework was to guide research efforts, to enhance communications with shared understanding and to integrate relevant concepts into descriptive or predictive model. Hartmann, Meerveld, Vossebeld & Adriaanse (2012) sought to establish ways of aligning building information model (BIM) tools and construction management methods. The paper provides a case based evidence for the benefits of a technology pull view and for its practical feasibility in BIM based tool implementation settings. The study researched on the BIM based tool implementation effort of two organizations as cases. The first case focused on the support of cost estimating activities with BIM based automated quantity take-offs. The second case focused on the support of project risk management activities with BIM 4D models - a BIM based technology that allows the visual simulation of planned construction activities over time. The cases illustrated that it was possible to align organization and technology through an in-depth understanding of the underlying project methods that guide the operation of a project team. The study also established that it was possible to align the existing functionality of BIM based tools with the project management methods. Barasa (2014) established the influence of project monitoring and evaluation tools on the completion of CDF funded projects in Kakamega County. The research employed a descriptive study. The target population of the study was all the 630 CDF projects' committee members that were 5040. The projects selected had a budget above 1 million Kenya shillings and were implemented between the year 2003 and 2013. The study established

that 61.1% of the target population of 5040 project management committee members was conversant with aspects of logical framework analysis (Kahura, 2013).

3.0 RESEARCH METHODOLOGY

In this study, descriptive research design was chosen as it allows for the exploration of relationship between the variables. It adopted a case study survey. The target population for the study was ROKO employees who were directly involved in five housing project development currently being carried out by ROKO in Kigali city. The sample size was 182 employees. Primary data was collected using structured questionnaires. Data from questionnaires was coded and logged in the computer using Statistical Package for Social Science (SPSS V 21.0). Descriptive statistics such as percentages, means and standard deviation were used to describe the factors influencing implementation of housing construction projects.

4.0 RESULTS AND DISCUSSION

4.1 Bio-Data

The respondents were asked to indicate their gender. Majority of the respondents who were 69% indicated that that they were male while only 31% indicated that they were female. This implies that majority of the employees in ROKO are Men. The respondents were asked to indicate their age. Majority of the respondents who were 31% indicated their age to be between 20-29 years, 20% of the respondents indicated that they were between 40-49 years, while 19% indicated that they were above 50 years of age. The study showed that 17% of the respondents were between 30-39 years old while only 13% were below 20 years old. This implies that majority of the employees in ROKO are young people and thus have the capability to improve the performance of the organization.

The respondents were further asked to indicate their education level. The outcome of the study showed that majority of the respondents who were 89% had attained a bachelor's level of education, 9% of the respondents indicated that they had attained a masters degree, 1% of the population were diploma holders and another 1% were certificate holders. This implies that majority of the employees in ROKO are educated and thus have the skills to improve the performance of the organization.

The respondents were further asked to indicate the years of experience in Roko Construction Company. Majority of the respondents who were 51% indicated that they had worked in the company for a period of 6-10 years, 38% a period of 2-5 years, 6% over 10 years while only 5% had worked for less than 2 years. This implies that majority of the employees had worked in Roko Construction Company for a number for years and thus had the relevant information required to answer the questionnaire.

4.2 Descriptive Statistics

4.2.1 Top Management

The results in table 4.1 revealed that majority of the respondents who were 55.4% indicated that the management gave higher support to respect to project manager and other project team members. The results further showed that majority of the respondents who were 42.7% indicated that the management gave highest support in timely availing the resources when required. The results of the study indicated that majority of the respondents who were 43.90% indicated that the top management showed high support in holding regular meetings to discuss issues affecting the project team members. The results also showed that majority of the respondents who were 42% indicated that the top management offered high support in providing technical expertise when required. The results also showed that majority of the respondents who were 46.50% indicated that the top management provided higher support in decision making process.

On a five point scale, the average mean of the responses was 3.5 which means that majority of the respondents indicated higher support; however the answers were varied as shown by a standard deviation of 1.12.

Table 1: Top Management and Project Implementation

	never supported	little support	high support	higher support	highest support	Mean	Std.Dev
Respect to project manager and other project team members	6.40%	5.10%	22.30%	55.40%	10.80%	3.59	0.97
Timely availing the resources when required	5.10%	7.00%	22.30%	22.90%	42.70%	3.91	1.18
Holding regular meetings to discuss issues affecting the project team members	4.50%	16.60%	43.90%	21.00%	14.00%	3.24	1.03
Providing technical expertise when required	8.30%	7.60%	42.00%	12.70%	29.30%	3.47	1.22
Assisting in decision making process	12.10%	13.40%	14.6%	46.50%	13.40%	3.36	1.22
Average						**3.51**	**1.12**

4.2.2 Communication Channels

The respondents were further asked to indicate the effectiveness of the channels of communication used in ROKO. The results revealed that majority of the respondents who were 57.30% indicated that use of emails in communication was less effective. The results also revealed that majority of the respondents who were 70.70% indicated that use of telephone was moderately effective. The results further revealed that majority of the respondents who were 47.10% indicated that memos were moderately effective in communication. In addition, the results showed that majority of the respondents who were 47.10% indicated that use of meetings in communication was very effective.

The results also showed that majority of the respondents who were 58.00% indicated that use of letters in communication was not effective.

On a five point scale, the average mean of the responses was 2.98 which means that majority of the respondents rated the rated the communication channels to be moderately effective; however the answers were varied as shown by a standard deviation of 1.04.

Table 2: Communication Channels and effective project implementation

	not effective	less effective	moderately effective	very effective	extremely effective	Mean	Std. Dev.
Emails	6.40%	57.30%	8.30%	24.20%	3.80%	2.62	1.04
Telephone	4.50%	1.90%	70.70%	12.10%	10.80%	3.23	0.84
Memos	5.10%	7.00%	47.10%	34.40%	6.40%	3.3	0.89
Meetings	10.80%	5.70%	5.70%	30.60%	47.10%	3.97	1.32
Letters	58.00%	21.00%	10.20%	6.40%	4.50%	1.78	1.14
Average						2.98	1.04

4.2.3 Staff Competency

The respondents were also asked to rate the staff performance. The results in table 4.4 showed that majority of the respondents who were 64.30% indicated that the staff was good at Understanding their scope of work as stated. The results also revealed that majority of the respondents who were 47.10% indicated that the staff was average in using the project planning tools and techniques. The results further showed that majority of the respondents who were 56.10% indicated that the employees' quality of work was good. The results also showed that majority of the respondents who were 45.90% indicated that the employees' ability to modify the design where necessary was good. In addition, the results showed that majority of the respondents who were 38.90% indicated that the staff was very good in performing the job without rework. The results also showed that majority of the respondents who were 44.60% were good in finishing the work as per the schedule. The results further showed that majority of the respondents who were 56.70% indicated that general quality of the work by the employees was very good.

On a five point scale, the average mean of the responses was 3.81 which means that majority of the respondents rated the rated the performance of the staff to be good; however the answers were varied as shown by a standard deviation of 1.11.

Table 3: staff performance

	very poor	poor	average	good	very good	Mean	Std. Dev
Understanding their scope of work as stated	5.70%	4.50%	7.00%	64.30%	18.50%	3.85	0.97
Use of project planning tools and techniques	3.80%	5.10%	47.10%	31.20%	12.70%	3.44	0.92

Quality of work by the employees	4.50%	5.10%	12.70%	56.10%	21.70%	3.85	0.97
Ability to modify the design where necessary	5.10%	7.60%	7.00%	34.40%	45.90%	4.08	1.14
Performing the job without rework	6.40%	5.10%	22.90%	26.80%	38.90%	3.87	1.18
Finishing the work as per the schedule	10.80%	8.90%	23.60%	44.60%	12.10%	3.38	1.15
General quality of the work	5.70%	5.70%	5.70%	26.10%	56.70%	4.22	1.15
Average						3.81	1.11

4.2.4 Project Planning Tool

The respondents were asked to rate the project planning. The results revealed that majority of the respondents who were 75.20% indicated that the planning of tasks was average. The results also revealed that majority of the respondents who were 34.40% indicated that Delivery of work plan in time was good. In addition, the results revealed that majority of the respondents who were 60.50% indicated that sticking to the project schedule was average. The results also showed that majority of the respondents who were 61.10% indicated that the employees were good in understanding the plan. The results further showed that majority of the respondents who were 53.50% indicated that a task dependency was good.

On a five point scale, the average mean of the responses was 3.81 which means that majority of the respondents rated the rated the project planning to be good; however the answers were varied as shown by a standard deviation of 1.01.

Table 4: Project Planning and Implementation of Housing Projects

	very poor	poor	average	Good	very good	Mean	Std. Dev
Planning of tasks	2.50%	4.50%	75.20%	13.40%	4.50%	3.43	0.87
Delivery of work plan in time	5.10%	5.70%	21.00%	34.40%	33.80%	3.86	1.11
Sticking to the project schedule	7.00%	7.00%	60.50%	15.90%	9.60%	3.14	0.94
Ability of the employees to understand the plan	6.40%	6.40%	9.60%	61.10%	16.60%	3.75	1.02
Tasks dependencies	5.70%	5.70%	9.60%	53.50%	25.50%	3.87	1.04
Average						3.55	1.07

4.2.5 Project Implementation

The results revealed that majority of the respondents who were 84.6% agreed with the statement that housing projects always starts and ends at the anticipated time in their organization. The results further revealed that majority of the respondents who were 97% agreed with the statement that their organization usually meets our customer's perceived requirements. The results further

revealed that majority of the respondents who were 87.3% agreed with the statement that all housing projects are completed within the budget. The results further revealed that majority of the respondents who were 76.4% agreed with the statement that their organization offer projects that are of high quality.

Table 5: Project Implementation

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev
Housing projects always starts and ends at the anticipated time	6.40%	8.90 %	10.10%	77.00%	7.60%	3.91	0.85
Our organization usually meets our customer's perceived requirements	7.00%	8.30 %	5.70 %	13.40%	65.60%	4.22	1.28
All housing projects are completed within the budget	2.50%	7.00 %	3.20 %	79.00%	8.30%	3.83	0.97
Our organization offer projects that are of high quality	6.40%	7.60 %	9.60 %	60.50%	15.90%	3.72	1.03
Average						**3.92**	**1.03**

4.3 Inferential Statistics

4.3.1 Correlation Analysis

The table below presents the results of the correlation analysis. The results revealed that top management and successful project implementation are positively and significant related (r=0.316 ,p=0.000). The table further indicated that communication channels and successful project implementation are positively and significantly related (r=0.334, p=0.000). It was further established that staff competency were positively and significantly related (r=0.485, p=0.000). Similarly, results showed that project planning and successful project implementation were positively and significantly related (r=0.318, p=0.000).

Table 5: Correlation Matrix

		project implementation	top management	communication channels	staff competency	project planning
project implementation	Pearson Correlation	1				
	Sig. (2-tailed)					
top management	Pearson Correlation	.316**	1			
	Sig. (2-tailed)	**0.000**				
communication channels	Pearson Correlation	.334**	0.094	1		
	Sig. (2-tailed)	**0.000**	0.243			

staff competency	Pearson Correlation	.485**	0.058	0.125	1	
	Sig. (2-tailed)	**0.000**	0.474	0.118		
project planning	Pearson Correlation	.318**	.323**	-0.064	0.02	1
	Sig. (2-tailed)	**0.000**	0	0.424	0.801	

** Correlation is significant at the 0.01 level (2-tailed).

4.3.2 Regression Analysis

The results presented in the table below present the fitness of the model used in the regression model to explain the study phenomena. Top management, communication channels, staff competency and project planning were found to be satisfactory variables in successful project implementation. This is supported by coefficient of determination also known as the R square of 66.8%. This means that top management, communication channels, staff competency and project planning explain 68.8% of the variations in the dependent variable which is successful implementation of the housing projects in Rwanda. This results further means that the model applied to link the relationship of the variables was satisfactory.

Table 6: Model of Fitness

Indicator	coefficient
R	0.668
R Square	0.446
Adjusted R Squared	0.432
Std. Error of the Estimate	0.34432

In statistics significance testing the p-value indicates the level of relation of the independent variable to the dependent variable. If the significance number found is less than the critical value also known as the probability value (p) which is statistically set at 0.05, then the conclusion would be that the model is significant in explaining the relationship; else the model would be regarded as non-significant.

The table below provides the results on the analysis of the variance (ANOVA). The results indicate that the overall model was statistically significant. Further, the results imply that the independent variables are good predictors of successful implementation of projects. This was supported by an F statistic of 30.61 and the reported p value (0.000) which was less than the conventional probability of 0.05significance level.

Table 7: Model of Fitness

	Sum of Squares	df	Mean Square	F	Sig.

Regression	14.52	4	3.63	30.618	**0.000**
Residual	18.02	152	0.119		
Total	32.54	156			

Regression of coefficients results in the table below shows that top management support and successful implementation of the housing projects are positively and significant related (r=0.169, p=0.006). The results further indicates that the communication channels used and successful implementation of the housing projects are positively and significant related (r=0.263, p=0.000). It was further established that the staff competence and successful implementation of projects were positively and significantly related (r=0411, p=0.000) Project planning and successful project implementation were also positively and significantly related (r=0.375, p=0.000).

Table 8: Regression of Coefficients

variable	B	Std. Error	t	Sig.
(Constant)	0.772	0.43	-1.793	0.075
top management	0.169	0.061	2.771	**0.006**
communication channels	0.263	0.057	4.57	**0.000**
staff competence	0.411	0.058	7.125	**0.000**
project planning	0.375	0.089	4.203	**0.000**

Thus, the optimal model for the study is;

Successful implementation of housing projects in ROKO = 0.772 + 0.169 top management support + 0.263 communication channels + 0.411staff competence + 0.242 project planning.

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

The first objective was to assess how top management support influence successful implementation of housing projects in Rwanda. The findings revealed that top management support has a positive and significant effect on successful implementation of housing projects in Rwanda.

The second objective of the study was to determine the influence of communication systems on effective implementation of the housing projects in Rwanda. Results reveal that the communication channel used has a positive and significant relationship on successful implementation of housing projects in Rwanda.

The third objective of the study was to determine the extent to which the staff competence influences successful implementation of housing projects in Rwanda. Results reveal that the staff competence has a positive and significant relationship on successful implementation of housing projects in Rwanda.

The fourth objective was to assess the extent to which project planning influence successful implementation of housing projects in Rwanda. Results revealed that project planning has a positive and significant relationship on successful implementation of housing projects in Rwanda.

5.2 Conclusion

In relation to the study, findings the study concluded that top management support, communication channel used, staff competence and project planning influence the successful implementation of housing projects in Rwanda. The findings revealed a strong positive relationship between the independent variables and the dependent variable.

5.3 Recommendations

Based on the research findings, the study recommended that the top management should offer high support to the project team. This will improve the implementation of housing projects in Rwanda. The study also recommended that the project leadership in relaying information to the project team should use effective channels of communication such as meetings and memos. This will also improve the implementation of housing projects in Rwanda. In addition to that, the project staff should be adequately skilled and competent in implementing their duties. This will translate to successful implementation of the housing projects in Rwanda. Finally, the study recommends that project planning should be effective in order to improve the implementation of housing projects.

REFERENCES

Aibinu, A. A., & Jagboro, G. O. (2002). The effects of construction delays on project delivery in Nigerian construction industry. *International journal of project management*, *20*(8), 593-599.

Anumba, C. (2006). Mobile ICT support for construction process improvement. *Automation in construction*, *15*(5), 664-676.

Githenya, M. S., & Ngugi, K. (2014). Assessment of the Determinants of Implementation of Housing Projects in Kenya. *European Journal of Business Management*, *1*(11), 230-253.

Ika, L. A., Diallo, A., & Thuillier, D. (2012). Critical success factors for World Bank projects: An empirical investigation. *International journal of project management*, *30*(1), 105-116.

Kehinde, J. O., & Mosaku, T. O. (2006). An empirical study of assets structure of building construction contractors in Nigeria. *Engineering, Construction and Architectural Management*, *13*(6), 634-644.

Kibuchi, N., & Muchungu, P. (2012). The contribution of human factors in the performance of construction projects in Kenya: a case study of construction project team participants in Nairobi. Retrieved January 5, 2012.

Koskela, L. J., & Howell, G. (2002). The underlying theory of project management is obsolete. In *Proceedings of the PMI Research Conference* (pp. 293-302). PMI.

Kwak, Y. H., & Ibbs, C. W. (2002). Project management process maturity (PM) 2 model. *Journal of management in engineering*, *18*(3), 150-155.

Oyetunde, O., & Moruf, O. (2012). Communication Approach and Firms Performance: Appraisal of Nigerian Bottling Company (Coca cola), Ilorin-Nigeria.

Trivellas, P., & Reklitis, P. (2014). Leadership competencies profiles and managerial effectiveness in Greece. *Procedia Economics and Finance*, *9*, 380-390.