

**PROFESSIONAL TEAMWORK AND PROJECT PERFORMANCE IN THE  
BUILDING CONSTRUCTION INDUSTRY IN KENYA**

**BY**

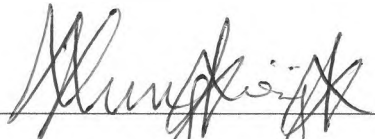
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**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENT FOR THE AWARD OF MASTER OF BUSINESS  
ADMINISTRATION DEGREE, SCHOOL OF BUSINESS,  
UNIVERSITY OF NAIROBI**

**NOVEMBER, 2012**

## DECLARATION

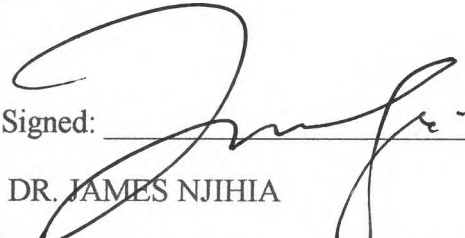
I hereby declare that this research is my original work and has not been submitted in the same form or any other form to the University of Nairobi or any other university or institution for any award.

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This study has been submitted with my approval as the university supervisor

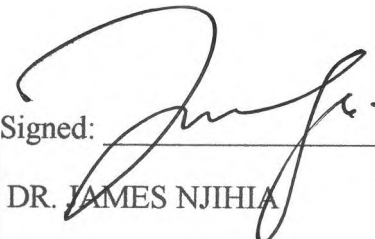
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## **DEDICATION**

I dedicate this piece of noble work to my dear wife, Mercy Gakii, and our children, Kanana, Kendi, Kithinji, Kanyiri and Bagine, for being there for me as I pursued my study and encouraging me to continue to the end despite my busy working schedule.

## ACKNOWLEDGEMENT

My special gratitude goes to my supervisor, Dr. James Njihia, whose guidance, patience and understanding made this research a success. His thorough examination of my work, critical positive comments based on his knowledge of the research matter was of great impetus to me.

I sincerely recognize the effort of my project coordinator, Mr. E. Akelo, for his guidance and dedication in ensuring that the whole exercise was successful.

My appreciation goes to the building consultants, who are my professional colleagues, for taking their time out of their busy schedule, to participate in filling the questionnaires in a timely manner.

## ABSTRACT

The purpose of this study was to investigate how teamwork management leads to effective implementation of building construction projects in Kenya. The study determined the extent to which effective teamwork management of professional firms has been employed in the building construction industry; establish the relationship between teamwork management of professional firms and successful completion of building construction projects and establish the challenges facing the teamwork management of professional firms in the building construction industry.

This study adopted a cross-sectional descriptive survey research design where the population for this study entailed all consultancy firms in the building construction industry registered with the Ministry of Public Works and Architectural Association of Kenya where 80 firms distributed to the different professional stakeholders were selected using proportionate stratified sampling method. Questionnaires were administered using drop and pick method. Data analysis involved reducing the accumulated data to a manageable size, developing summaries and looking for patterns, and applying statistical techniques. The data gathered was edited, and randomly validated, the field results, through re-interviewing some of the respondents.

From the study, the researcher concludes that, success of any activity done as a group relies on the leaders of the group. At the same time, team work is one of the most important aspects in any organization or company. This is because in a team, many skills are exhibited by various team members and at the same time, members complement each other where one member does not know, the other member does. At the end of it all, high quality work is produced through combined effort. The team leaders should, by all means acquire the skills necessary to lead the team members while seeing to it that they lead by example in deeds and in speech. By so doing, the team members will follow the good example set by the leaders which will eventually result in success of the project. The team members should cooperate with both their leaders and among themselves to avoid unnecessary conflicts. This will save on time which would otherwise be lost in trying to resolve the conflicts.

# TABLE OF CONTENTS

Declaration.....	i
Dedication.....	ii
Acknowledgement.....	iii
Abstract.....	iv
Table of contents.....	v
List of tables.....	viii
List of figures.....	ix
<b>CHAPTER ONE: INTRODUCTION.....</b>	<b>1</b>
1.1 Background of the Study.....	1
1.1.1 Professional Teams in the Building Construction Industry.....	2
1.1.2 The Building Construction Industry in Kenya.....	3
1.2 Statement of the Problem.....	4
1.3 Objectives of the Study.....	5
1.4 Value of the Study.....	5
<b>CHAPTER TWO: LITERATURE REVIEW.....</b>	<b>7</b>
2.1 Introduction.....	7
2.2 Project teams.....	7
2.3.1 Team leadership.....	8
2.3.2 Team Members.....	9
2.3.3 Project work atmosphere.....	9
2.3.4 Project management and performance strategies.....	10
2.4 Challenges facing construction professionals.....	11
2.4.1 Communication within the construction alliance.....	12
2.4.2 Stress among the professionals.....	12

2.4.3	Project Management Skills.....	13
2.5	Theories of teams.....	14
2.7	Summary.....	15
2.8	Theoretical framework.....	16
<b>CHAPTER THREE: RESEARCH METHODOLOGY .....</b>		<b>17</b>
3.1	Research Design.....	17
3.2	Population.....	17
3.4	Data Collection.....	18
3.5	Data Analysis.....	19
<b>CHAPTER FOUR.....</b>		<b>20</b>
<b>DATA ANALYSIS, INTERPRETATION AND PRESENTATION .....</b>		<b>20</b>
4.1	Introduction.....	20
4.2	Information on company profile.....	20
4.3	Factors affecting team management.....	22
4.4	Effective teams.....	27
4.5	Regression model.....	30
4.6	Discussion.....	33
<b>CHAPTER FIVE .....</b>		<b>37</b>
<b>SUMMARY, CONCLUSIONS AND RECOMMENDATIONS .....</b>		<b>37</b>
5.1	Introduction.....	37
5.2	Summary of findings.....	37
5.3	Conclusion.....	38
5.4	Limitations of the study.....	39
5.5	Recommendations.....	39
5.6	Suggestions for further studies.....	40

REFERENCES.....	41
REFERENCES.....	41
APPENDICES.....	46



## LIST OF TABLES

Table 3.1: Sampling.....	18
Table 4.1: Project budget.....	20
Table 4.2: Project period.....	21
Table 4.3: Extent to which various skills and traits were exhibited by team leaders .....	22
Table 4.4: The extent to which various behavior were exhibited by team members.....	24
Table 4.5: The extent to which various activities were done in the project.....	25
Table 4.6: The extent to which various strategies were utilized in the project.....	26
Table 4.7: The extent to which the various factors were applied in the team.....	27
Table 4.8: The extent to which various targets were met .....	29
Table 4.9: Correlation coefficients for model generation.....	30
Table 4.10: Multivariate R-Square .....	31
Table 4.11: Correlation coefficients .....	32
Table 4.12: Model summary .....	33

## LIST OF FIGURES

Figure 2.1: A model of Teamwork and Success of Project .....	16
Figure 4.1: Project budget.....	21
Figure 4.2: Project period .....	22
Figure 4.3: The extent to which various skills and traits were exhibited by team leaders	23
Figure 4.4: The extent to which various behavior were exhibited by team members .....	24
Figure 4.5: The extent to which various activities were done in the project .....	25
Figure 4.6: The extent to which the various factors were applied in the team .....	28
Figure 4.7: The extent to which various targets were met.....	29

# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the Study

The Project Management Institute defined a project as a temporary endeavour undertaken to create a unique product or service (Meredith and Mantel, 2006). Normally an idea is hatched when trying to overcome certain problems. The problems may be non-utilization of either the available funds, plant capacity to make profit or for Government to avail to all Citizens certain basic amenities or satisfy political consideration. A project starts from scratch with a definite mission, generates activities involving a variety of human and non-human resources all directed towards fulfillment of the mission and stops once the mission is fulfilled. The project lives between these two cut-off points, therefore, this time-span is known as project Life Cycle (Choudhury 1988). To accomplish the project goals, project management skills must be used to allocate responsibility and authority to each task covering the whole project cycle. The common assessment of success of a project is when it is delivered on time, to budget, meet technical specification and satisfy the stakeholders.

The client may appoint a project manager (PM) from his organization senior management or outsource if the organization lacks capacity. The role of the PM primarily falls into three separate areas: responsibility to the organization, project and client, and responsibility to project team. Responsibilities to organization include proper conservation of resources, timely and accurate project communication and careful, competent management of the project. To the project and client is to that the integrity of the project is preserved in spite of conflicting demands made by the many parties who have legitimate interest in the project (Meredith and Mantel, 2006). The responsibility to the project team depends on whether the team consists of organization's personnel or outsourced consultants. If the team consists of internal staff, the PM takes the role of the team leader while for outsourced, the firm engaged appoints a team leader who coordinate the team.

A team will normally consist of members with diverse specialization and sometimes from different organization and cultures. Teamwork is not possible where there is cynicism about the motives of others. Better understanding is reached through the development of personal relationships and learning about each team member's strength and what they can bring to the table. With understanding comes trust and with trust comes the possibility of a successful relationship and project. Learning to respect and trust one another's respective role in the construction process and recognizing the risk inherent with those roles is important for team synergy and project success (Smith & Wilkins, 1996). Therefore, ineffective communication can produce undue stress and tension among team members, which lowers both moral and productivity that can lead to loss of time and money. Effective teams work by developing and promoting open and clear communication amongst its team members.

Professionals are a key asset and an important determinant of a successful organization; however, the tasks of managing people and improving their performance are often fraught with difficulties. This is particularly true in the construction project environment, in which people from different organizations are working together on a temporary basis and are highly interdependent while performing their respective tasks to achieve the common project objective. In a study by Granath and Hinnerson (2002), it was noted that although there is an agreement on the values and objectives of a project, there is a risk that these will change due to the project processes of today.

### **1.1.1 Professional Teams in the Building Construction Industry**

Construction management is a challenging and demanding profession. In the Kenya building industry, the professionals involved are Architects, Civil/Structural Engineers, Electrical/Mechanical Engineers and Quantity Surveyors. This forms the basic technical team in any building project. In general, an Architect is involved in the planning, designing and oversight of a building's construction. He translates the user's needs into the builder's requirement and thus must thoroughly understand the building and operational codes under which the design must conform (Hassin & Abdelnasor, 2006).

Once the client requirements are agreed, the consultants are engaged and a written contract is entered. The consultant then designs the building, prepares drawings, specifications and bills of quantities.

During construction, the Client may opt to have the same team involved in the design and supervision stage or engage another team to supervise the work. In supervision stage, periodic inspection and meetings are held where the general progress is noted, amendments made and problems resolved. Minutes and progress report are taken then submitted to the Client for information and decision making (mbeche, 2000). Once the project is completed the consultants are discharged and final payments made.

### **1.1.2 The Building Construction Industry in Kenya**

The industry has varied stakeholders that can be divided into 4 broad categories – Developers (investors), Contractors (implementers), Suppliers/manufacturers and consultants (designers and supervisors). Developers vary from individuals to large corporations to governments and local authorities. Contractors range from one-man concerns to large multi-national corporations (Hassin & Abdelnasor, 2006). With the establishment of the new National Construction Authority, for the regulation of the construction industry, it is expected that the delivery of building works will be improved as professionals will be involved in the direct management of the construction firms.

The building construction industry in Kenya is generally regulated by among others Engineers Registration Board (ERB) established by Cap 530 of the Laws of Kenya, the Board of Registration of Architects and Quantity Surveyors (BORAQS), established by Cap 525, the Physical Planners Act Cap 286, the Public Procurement and Disposal Act 2005, the Public Health Act Cap 242 and the National Environmental Management Authority. Each of the Boards or Authorities describes the roles and responsibilities of the respective professionals it governs or regulates. Some of them specify the necessary training and qualification required of the professionals who are registered under the respective Act. The supervisory and quality control level of the building construction industry involves Engineers, (under ERB), Architects and Quantity Surveyors (under BORAQS), Environmental audit experts (under NEMA) among others.

## 1.2 Statement of the Problem

Success is the ultimate goal in project management. Along with the aspiration of any Client, the PM and the teams works towards timely completion of project within budget and to specification while satisfying all stakeholders. Being a new concept in Kenya, there is little research in project management and especially in the building construction industry.

The building construction industry is an important sector of the economy which contributes significantly to gross domestic product in any economy. Most building construction projects are delivered in the conventional way where the architect designs and the contractor constructs (Chan, 1996). However, building Clients are becoming dissatisfied with the drawbacks brought about by the separated professionals and opt for more integrated options. Team working models indicate how teams can work and perform better in general (Rippin, 2002; Belbin, 2004). However, in the building construction industry, increased specialization over the past century or so, has led to fragmented project teams. More recently, this has been deplored as unproductive (Latham, 1994), because the advantages of specialization have been overwhelmed by the difficulties of coordinating inputs and integrating outputs.

Teamwork in construction has been widely researched by a number of researchers (Baiden, 2006; Cheng *et al.*, 2006; Chervier, 2003; Ochieng, 2008), and the findings have clearly illustrated that best construction project performance is achieved when the whole project team is fully integrated and aligned with project objectives. Weatherley (2006) agree that project success is difficult enough to accomplish where the project team is located close to the construction project environment, and the situation is made considerably complex for multicultural professional teams, that are widely separated geographically and that have dissimilar organizational and regional cultures. Emmitt and Gorse (2007) have shown that, for factual data transfer, a number of communication problems have not been addressed due to the development of rapid global information systems. Ely and Thomas (2001) demonstrated that diversity increases the number of

different perspectives, styles, knowledge and insights that the team bring to complex problems.

An area that merits attention is established on factors leading to effective team work management of professional firms. This has received little attention in literature. Coordination of the different professions is imperative for the successful completion of building construction projects. In Kenya, there are numerous failed projects marked by delayed completion time and cost overruns, example of this is the Turkwel Dam. These problems may be attributed to poor team management in addition to the alleged corruption and political interferences. The aim of this study was therefore to investigate how teamwork management leads to effective implementation of building construction projects by answering the question: how does team work management of professional firms in the building construction industry affect project performance in Kenya?

### **1.3 Objectives of the Study**

- I. To determine the extent to which effective teamwork management of professional firms has been employed in the building construction industry in Kenya;
- II. To establish the relationship between teamwork management of professional in the building construction industry and successful completion of building construction projects in Kenya;
- III. To establish the challenges facing the teamwork management of professional firms in the building construction industry in Kenya.

### **1.4 Value of the Study**

#### **a) Academicians**

In the academic field, future researchers can use the study as a reference point if one is researching on team work management and the related topics. The findings of the study

will be of use to trainers in marketing in that it will assist them in knowing the areas which should be given concentration when training managers on teamwork management.

### **b) Policy Makers**

The study will be of importance to other government agencies whose interest lies on improved services delivery for economic development and creating investor confidence. It will assist the government in pointing out areas of difficulties in the allocating of resources towards addressing priority needs. The study will also help the government in formulating a policy on the regulatory process in the economy in the areas that necessitate professionalism and teamwork, in order to ensure orderly economic growth and development.

### **c) Professional Firms**

The study of project success has attracted considerable attention in the construction industry. As project participants always aim for the success of a construction project, the industry will benefit alongside the professional firms to enhance results oriented teamwork.



## CHAPTER TWO: LITERATURE REVIEW

### 2.1 Introduction

A team is a collection of individuals who exist within a larger social system and who can be identified by themselves and others as a team. Team members are interdependent and perform tasks that affect other individuals and groups. Teams are formed because they can accomplish what an individual cannot due to their different functional skills. In addition, social needs are easily satisfied in a team (Stewart, *et al* 1999).

To assist in understanding how teams are managed in the building industry, various literatures addressing team work in general and specifically in the industry have been reviewed. From the literature reviewed, indicators of an effective team, the team members and their responsibilities in a project, factors affecting team management, challenges encountered were identified. In addition one model and one theory on teamwork are discussed.

### 2.2 Project teams

The professionals engaged; work in teams, despite, sometimes, not having known each other before. The team formed can be considered effective if it is able to deliver a project successive without losing its members and satisfying the needs of each individual member. The success of the project is measured by the satisfaction of the client while that of the members by expression of their happiness and want to continue working together. (Stewart *et al*, 1999)

For the teams to be effective they must be able to establish their task by setting objectives, deciding plans and defining roles and responsibilities. But to help the team to work together productively there is need to create open and honest communication channels, establish team values and develop ground rules. Failure to address these issues leads to infighting and no task to accomplish (Nash, 2001).

Early in the teambuilding process, team members should state their duties, responsibilities and authority levels to the other members. This exercise provides other

team members with firsthand knowledge of who they need to work with to solve a particular issue. Participants need to explain why they have particular duties and responsibilities. For example, the design engineer is not required to make field visits only to be an enforcer for contract compliance but to verify the design they are liable for is being carried out. Team members cannot task and social inputs unless they have the necessary knowledge, skills and ability. Members' capability to provide desirable inputs can be obtained either through effective team member selection or through training and development. Team building is important for the successful accomplishment of any project. The objective of the team is to deliver a project that completes on time, is on or under budget, is profitable to all team members, void of claims, and results in a satisfied owner. Rivalries, documentation battles, doing harmful actions out of spite, and other distracting actions may result in at least an unpleasant work environment and more likely an unsuccessful project (Cheng *et al*, 2006)

### **2.3 Factor Affecting Team Management**

To have an effective team there is need to understand factors that influence team management, key of which is team leadership, identifying the members and their strength and weakness. Other factors are the work environment and the project strategy applied.

#### **2.3.1 Team leadership**

The Client's project team, the contractor and the design consultants are the key project participants in a construction project and their respective team leaders form the main focus of this factor. They should possess all the necessary skills of a project manager, namely leading, planning, organizing and coordinating skills and perform to the greatest extent of their capability (Smith and Wilkins, 1996). They should have a clear understanding of the Client's brief and be mindful to the business and cultural aspects of the company (Deakin, 1999). Indeed, all project team leaders should be devoted to the integration of specialized knowledge for a common purpose towards project success (Hemlin, 1999) and should have sufficient knowledge on construction documentation and dissemination (Songer and Molenaar, 1997).

Apart from working within the constraints of the project itself, project team leaders should also possess certain human skills in coping with stresses, establishing good relationships among team members and inducing a harmonious working atmosphere (Smith and Wilkins, 1996).

The traditional skills of an effective project team leader rests in the project or project-related aspects – technical and social skills (Hauschildt *et al.*, 2000). One increasingly critical prerequisite, the adaptability to change, is also necessary to cope with constant and rapid change of technology, markets, regulations and socio-economic factors (Hemlin, 1999). Construction is known for time-saving with the fast-track principle. Without the coordination and support from the project team members, the success of the construction project can hardly be assured. The team leader requires support from his firm and adequate delegation of authority to help speed up decision making and implementation (Munns and Bjeirmi, 1996).

### **2.3.2 Team Members**

In the construction teams, members have different specialization and may come from different organizations. Each member plays his functional. But to have an effective team, team role as described by Belbin (2004) need to be considered. The Belbin Team Role Model describes how suitable the member is for the team and looks at six factors, namely, personality, mental abilities, motivation, values, field restrictions and experience and role learning. By assessing the member's behavior, team roles can be allocated. These roles include, Coordinator/Team Leader, Plant, Implementer, Resource Investigator Monitor/Evaluators, Teamworkers, Shapers Completer/Finishers and specialist. These members are utilized at different stages of the project and when need arises.

### **2.3.3 Project work atmosphere**

A pleasant and encouraging working atmosphere is conducive to the success of a construction project. How project participants look at a particular project can significantly affect their performance. For instance, the contractor should be confident of

the design and construction of a construction project (Kok, 1995). Other team members should establish satisfaction, expectations and values from the project. An adequate delegation of the project team decision-making authority can indeed raise their morale standards (Retherford, 1998) and if the project is appealing and innovative enough for the contractor to provide a better alternative option, the chance of success can be higher

When the project team members are psychologically fit to implement the construction project, the chance of forming a cohesive and well-integrated team can be increased, which is essential to construction project success (Rowlinson, 1997). Such a project team is effective in eliminating communication problems, encouraging respect and mutual trust (Deakin, 1999). The formation of team spirit strengthens the willingness of all parties to work as a team (Smith and Wilkins, 1996) and enhances cooperation to link interdependent functions together towards project success.

The working atmosphere is harsher for projects that are bigger, more complex and located farther from the headquarters of the teams and widely dispersed (Songer and Molenaar, 1997). Hence, the attributes of project characteristics include: the project size, level of complexity, project location, project scope, project objectives, appeal of the project and project scope for innovation.

#### **2.3.4 Project management and performance strategies**

Project management has been considered as one major determinant of project success (Smith and Wilkins, 1996). With the key goals of project management being timeliness, adherence to specification, working within budgets and satisfying stakeholders, the project strategy works target to achieve this goals. These strategies should be formulated and well understood by the consultant teams to enable effective implementation of the strategies.

The strategies applied aims at drawing attention of all stakeholders by establishing proper communication and feedback channels. This can be achieved by holding frequent progress and coordination of the consultant teams and with clients and contractors. If this is utilized well, at the design stage, all the requirements of the client will be captured at

design and minimizing the need for variation during construction. Though timeliness, cost and quality is the main target of project management, the benefits may be irrelevant if the stakeholder are not satisfied.

Dispute resolution procedures ensure that conflicts in design information is resolved in systematic manner (Lamont, 1999). Enforcing adherence to a rigid framework of programme date established through detailed programming will ensure completion on time. To ensure specification and contractual obligations are met, a system for quality, risk, safety, and more human related management is established by creating procedures to followed by project participants (Al-Meshekeh and Langford, 1999).

*To avoid unnecessary changes that may prolong the completion date, variation control measures are applied (Hidenori, 1995). Variation controls minimizes overrunning the budget by limiting change in specification that may result to higher cost due to higher specification or prolonged completion date. Addressing of dispute in a speedy manner lowers resource idle time, which the Contractor may demand compensation hence increase the cost of the project.*

Hence, the attributes of project management strategies include: communication and feedback systems, quality, safety, risk and conflict management systems, organizational structures and culture, control mechanisms of sub-contractors' works and the overall managerial actions in planning, organizing, leading and controlling.

#### **2.4 Challenges facing construction professionals**

Challenges facing the construction professionals are based on the communication within the construction alliance as well as stress among the professionals. The biggest problem facing professionals is communication as manifested by lack of flow of appropriate information from one organization to another. At the same time, the construction industry offers numerous potential stress sources in the workplace including dangerous and dirty working conditions on site.

### **2.4.1 Communication within the construction alliance**

Communication refers to the transmission of resources (e.g. information and other meanings including ideas, knowledge, specific skills and technology) from one party to another through the use of shared symbols and media. Resources have been regarded as a major component in a network structure (Swan *et al.*, 2000). Since resources are scarce and competitive, it is not common to share resources amongst organizations. Nevertheless, construction alliances enable communication to flow in a free manner. That is, the alliance parties have the right to use all resources that are allocated by individual parties shared amongst them.

When undertaking a project, the main resources are expertise (including knowledge, technology, information, and specific skills) and capital (i.e. intellectual and financial). As mentioned previously, a construction project usually requires a variety of skills and technology, and so the involved parties belong to different professional backgrounds. A project consists of several phases including planning, design, construction, and commissioning. The phases are in such a way that they are linked in a specific order from the first to the last. The variety of their expertise is always a source of conflict if communicated improperly. In contrast, complementary expertise can be used to strengthen the competitiveness and construction capability of a partnered relationship if managed effectively.

### **2.4.2 Stress among the professionals**

The construction industry offers numerous potential stress sources in the workplace. These include dangerous and dirty working conditions on site; role conflict and role ambiguity (Leung., 1999); long work hours, job insecurity, bureaucracy and lack of opportunity to learn new skills (Ng *et al.*, 2005) as well as work-family conflicts (Lingard and Francis, 2004). The individual experiencing long periods of chronic job stress is likely to encounter physical health problems reduced productivity or effectiveness and lower levels of satisfaction and organizational commitment (Maslach *et al.*, 2001). High levels of job burnout have been identified by Lingard (2003) among Australian civil engineers and Yip *et al.* (2005) among construction professionals in Hong Kong.

An interesting way of coping with the increasing demand for project management professionals was the development of bodies of knowledge (BoK), that summarized the main and important knowledge in the area of project management, by identifying with professional associations, for instance the Association of Project Management (APM) and the Project Management Institute (PMI) (Meredith and Mantel, 2006)

These phenomena not only threaten the well-being of construction professionals but also reduce industrial efficiency and long-term competitiveness. However, as a result of limited theoretical and empirical research into occupational stress within the construction industry (Haynes and Love, 2004), it would appear that many construction professionals are unaware of the potential consequences of the burnout syndrome. Little of the existing research addresses the role coping plays when managing occupational stress to reduce the exposure to burnout.

Coping has been recognized as a moderator of job demand (Rijk *et al.*, 1998). The effects that such stressors have on construction professionals depend upon the cognitive and behavioural responses evoked. Such responses, or coping behaviours, are determined by the amount and quality of resources available when the problem or stressor arises (Heaney *et al.*, 1995).

### **2.4.3 Project Management Skills**

There are various skills needed for effective management of a project. In most cases, failure to adopt such skills in whatever phase of the project may cause inefficiency either at that level or to the overall outcome of the project. To begin with, proper resource management is essential to ensure that there is no shortage that may disrupt the flow of the project.

Secondly, it is of significant importance to have a team spirit. This is because there are some issues which cannot be handled by the management but can be handled by the subordinate. This will also ensure that work is not suspended every time the person supposed to do it is caught up with other commitment of equal importance.

There also has to be proper communication skills. Since the project is done in phases, miscommunication to or in any phase will affect the activities in that phase and the others linked to it (Andersen, 1995).

## **2.5 Theories of teams**

This study is based on the Tuckman's model which has five stages of team working (i.e. forming, storming, norming, performing as well as the last stage of adjourning. Belbin looks at the needs for a team and matches to members with the required traits and experience.

### **2.5.1 Tuckman's model**

Tuckman's model explains that as the team develops maturity and ability, relationships establish, and the leader changes leadership style. Beginning with a directing style, moving through coaching, then participating, finishing delegating and almost detached. At this point the team may produce a successor leader and the previous leader can move on to develop a new team. This progression of team behaviour and leadership style can be seen clearly in the Tannenbaum and Schmidt Continuum - the authority and freedom extended by the leader to the team increases while the control of the leader reduces (Tuckman, 1977).

### **2.6.2 Belbin's Team Roles Theory**

Belbin (2004) made some experiments that consisted of the fundamentals of her theory. The results of her experiments, which constituted a model of management teams, based on the roles required for the success of the team. Belbin described team roles as a servant member's, who facilitated the progress of the team as a whole with his performance, structure of team as a whole with his performance, structure of others. She believes that team members have two types of roles. The first one, as described in role theory, typical functional role. The second type is the team role(s). Team role describes how suitable the member is for the team, not the functions. In this model the role is described with six factors, namely, personality, mental abilities, motivation, values, field restrictions and experience and role learning. However, Belbin didn't demonstrate how most of the



changes could be explained by each factor. Instead, she defended the opinion that high performance teams required a balanced distribution of all the roles within the team.

Belbin also thought that team role concept should be distinguished from the concept of functional role that points out job related operational and technique knowledge. As a result, some members may have the same functional role but still have different team role(s). Belbin attracts the attention to the connection between the needs for different team roles prevailing at different stages of the development process of the team. The mentioned six stages are as follows; 1) Determining the needs. 2) Coming up with ideas. 3) Formulating the plans, 4) Realization of the ideas, 5) Forming the team and 6) finalization of the job. At the first stages the Shaper and Coordinator will be needed mostly whereas the Completer-Finishers and Implementers will come in the later stages. At the beginning, she labeled the team roles as; Chairman, Shaper, Plant, Resource Investigator, Monitor Evaluator, Team Worker, Company Worker and Completer/Finisher. She later renamed the Chairman as “Co-ordinator” and the Company Worker as “Implementer” and he added a ninth role as “Specialist”. Team roles were divided into three groups; action roles (Shaper, Implemented and Completer Finisher), social roles (Co-ordinator, Team worker and Resource Investigator) and thinking roles (Plant, Monitor Evaluator and Specialist). Belbin Team Role Theory is applicable in this study because it will help in identifying suitable character of the team member.

## **2.7 Summary**

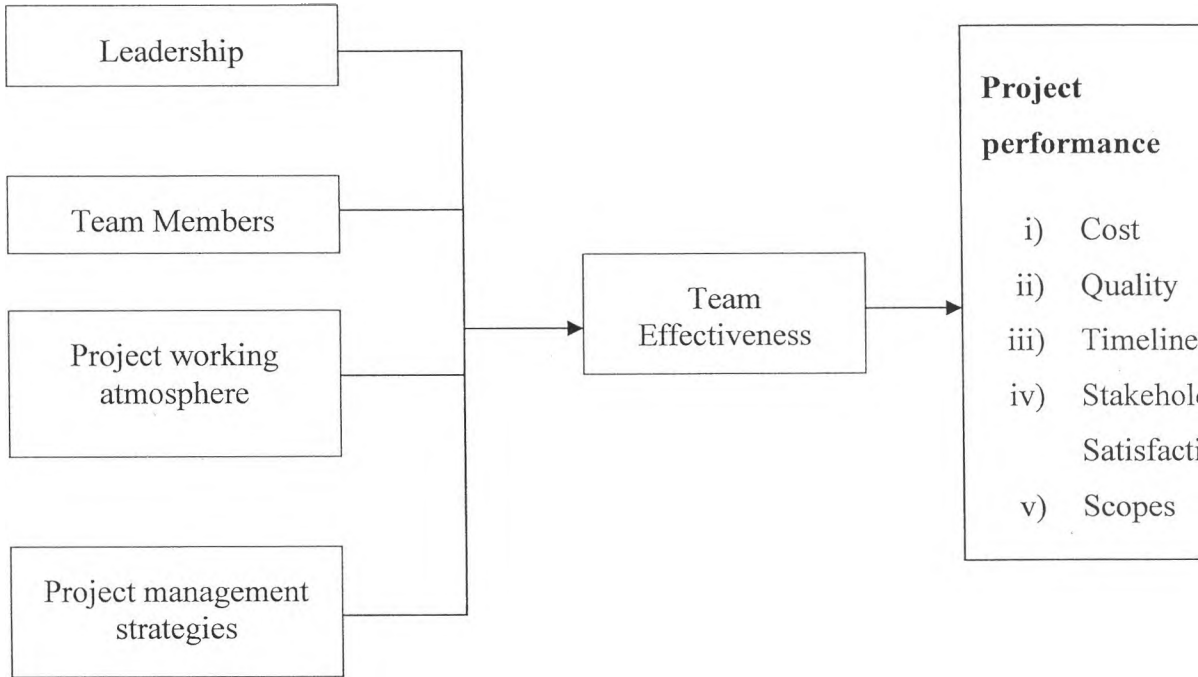
An effective team is the main key factor for project success. Teams in the Construction industry are constituted of different professionals from different firms and sometimes unknown to each other. This makes team management a major challenge. Effective team leader who is both technically and socially empowered, well balanced team, with complementing roles, and an environment conducive to working and project strategies are factors that contribute to success of a project.

The major challenge facing the Construction professionals is poor communication skills due to their different professional background. This and including long working hours, dangerous and dirty working condition results to stress. Lack of project management

skills leads to poor planning and resource allocation making coordination of the team difficult as members are not aware of their roles at different stages.

Tuckman's forming; storming, Norming, Performing model and Belbin's Team Roles Theory will help in understanding the stages a team goes through and balancing of team members to have an effective team.

## 2.8 Theoretical framework



**Figure 2.1: A model of Teamwork and Success of Project**

Figure 2.1 presents the theoretical framework for variable relationship between teamwork and project performance within confined level of resources. Good leadership with the right mix of team members operating in an environment conducive to working condition and with the right strategy results to desired project performance. The desire performance is measured by completion of the project within time, budget, meeting the specified quality and scope in addition to satisfying the stakeholders.

## CHAPTER THREE: RESEARCH METHODOLOGY

### 3.1 Research Design

This study adopted a cross-sectional descriptive survey research design. It involves collecting data in order to answer questions concerning this study. This design was justifiable because it compares the quantitative reasoning of a sample. In addition the design, by the virtual of being cross-sectional, gives a representation of the whole population with minimum bias. Moreover descriptive survey makes standardized measurement more precise by enforcing uniform definitions upon the respondents. Borg (1996) postulates that a descriptive research design is a logical and valuable way of looking at the world. This logistic ensures that similar data can be collected from groups/strata then interpreted comparatively.

### 3.2 Population

A population is the total collection of elements the researcher wishes to make references. The population for this study entailed all consultancy firms in the building construction industry registered with the Ministry of Public Works, Kenya as at 5<sup>th</sup> May, 2012 totaling 103.

### 3.3 Sampling

A sample is a smaller representative of the population with all the characteristics of the said population. According to Cooper and Schindler (1997) a sample size is determined by a number of factors. Some of these are the fact that, the greater the variance within the population, the larger the sample should be to provide increased estimation precision; the greater the desired precision of the estimate, the larger the sample; the higher the confidence level in the estimate, the larger the sample must be and thereafter the number of sub-groups of interest within a sample, the greater

The sample size was determined using Slovin's Formula (Mugenda & Mugenda, 2003):  $n = N / (1 + Ne^2)$  where n, N and e are the number of samples, the total population and

error tolerance respectively. When using Slovin’s formula, the error of tolerance is first determined which can range between 95% and 99% confidence level (giving a margin error of 0.05 and 0.01 respectively). In this study a confidence level of 95.0% was utilized thus the margin of error was 5% or 0.05. Thus the sample size was given as  $103/((1+103(0.05)^2)$ , i.e 80 firms distributed to the different professional stakeholders as presented in Table 3.1. Proportionate stratified sampling method was then used.

The sample design for the research was as indicated below:

**Table 3.1: Sampling**

Category	Population	Sample size
Quantity Surveyors	18	14
Civil & Structural Engineers	21	16
Architects	49	38
Electro-Mechanics	15	12
<b>Total</b>	<b>103</b>	<b>80</b>

**3.4 Data Collection**

The questionnaires were administered using drop and pick method. Managing directors for the respective firms were targeted for interview. Where they (managing directors) were not available, a senior manager charged with operational roles was interviewed. Given that, this method of administering questionnaires usually has low response rate, visits were made to the premises to persuade them to respond to the questionnaires. The questionnaires were structured into three sections. Part A enquired on the demographic composition of the respondents and their respective firms. Research Objective 1 be was addressed by Part B; the relation between teamwork and project performance in the building construction industry in Kenya. Objective II was addressed by Part C enquiring on the ingredients of an effective team while objective III addressed by Part D to determine performance of projects. Objective IV which is on the challenges facing the teamwork management of professional firms in the building construction industry was addressed by Part B, C, and D. The data captured were behavior, attitude and

phenomenon. These can be more usefully done using the Likert scale as it facilitates evaluation and quantification (Leed & Ormrod, 2005).

### 3.5 Data Analysis

Data analysis involves reducing the accumulated data to a manageable size, developing summaries and looking for patterns, and applying statistical techniques. The researcher edited the data gathered, and randomly validates the field results through re-interviewing of some of the respondents. The researcher used a coding system in the questionnaire and will adopt both numeric and alpha-numeric codes.

The data was keyed in, using Microsoft Access database program. Once all the data has been entered, the researcher verified the database for accuracy and completeness of the entry. The data was then run through the Statistical Package for Social Sciences (SPSS).

To aid in getting the relationship between the teamwork management and the success of projects, Correlation and regression was applied for Objective I, establishing the relationship between teamwork management of professional firms in the building construction industry and successful completion of building construction projects. Objective II, determining the extent to which effective teamwork management of professional firms and Objective IV, establishing the challenges facing the teamwork management of professional firms in the building construction industry, will be analyzed using descriptive statistics since the design will indicate how and to what extent the variables identified affect teamwork management..

The formulae used was  $Te = a_1 + b_1L + c_1Tm + d_1Pa + e_1Ps + \epsilon_1$  and  $Pp = a_2 + b_2TE \epsilon_2$

Where;  $Te$  is team effectiveness,  $L$  is team leadership,  $Tm$  is team members,  $Pa$  is project atmosphere,  $Ps$  is project strategy,  $Pp$  is project performance,  $\epsilon_1$  and  $\epsilon_2$  is the error term and  $a_1, b_1, c_1, d_1, e_1, a_2$  and  $b_2$  are coefficient of variable

## CHAPTER FOUR

### DATA ANALYSIS, INTERPRETATION AND PRESENTATION

#### 4.1 Introduction

This chapter presents data analysis, findings interpretation and presentation. Data in this study have been analyzed using descriptive techniques including percentages, mean, frequency and standard deviation. This chapter was organized into sections based on objectives including determining the extent to which effective teamwork management of professional firms has been employed in the building construction industry, establishing the relationship between teamwork management of professional firms in the building construction industry and successful completion of building construction projects as well as establishing the challenges facing the teamwork management of professional firms in the building construction industry. The chapter also presents inferential findings.

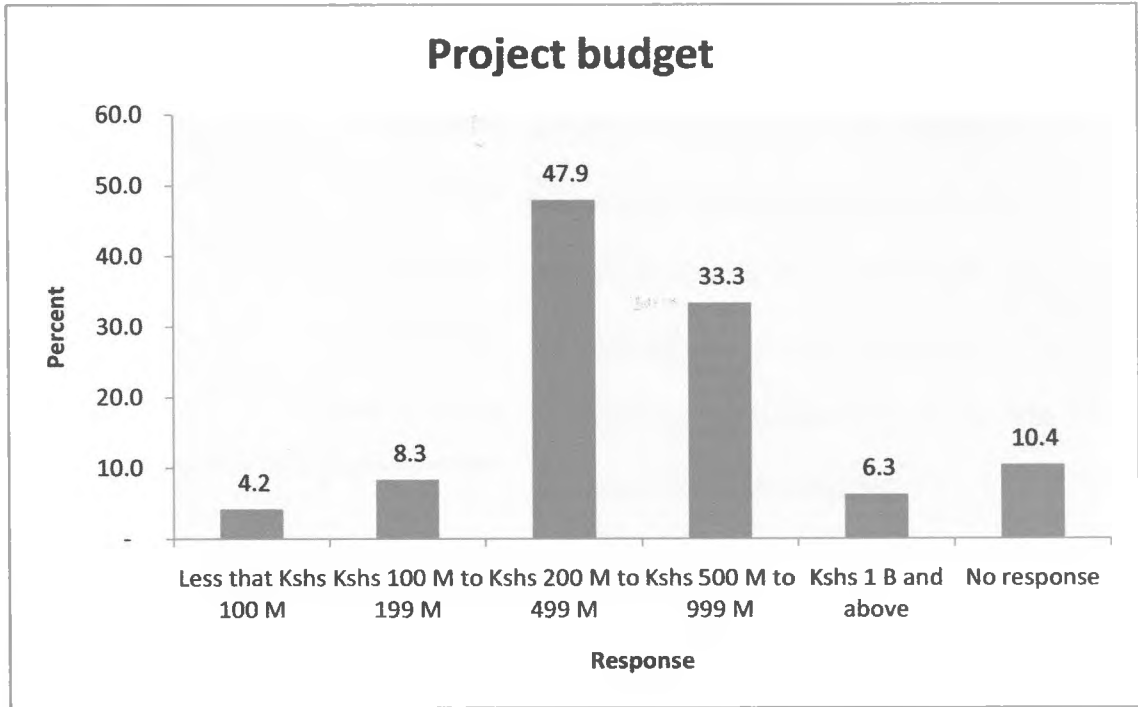
#### 4.2 Information on company profile

This section was based on the budget of the project as well as the period the project took before completion. Budget would be necessary to determine the size of the project. When compared with the duration taken to complete the project, the study will be display some aspects of team working particularly in efficiency.

**Table 4.1: Project budget**

	<b>Frequency</b>	<b>Percent</b>
Less than Kshs 100 M	2	4.2
Kshs 100 M to 199 M	4	8.3
Kshs 200 M to 499 M	23	47.9
Kshs 500 M to 999 M	16	33.3
Kshs 1 B and above	3	6.3
No response	5	10.4
<b>Total</b>	<b>48</b>	<b>100.0</b>

**Figure 4.1: Project budget**

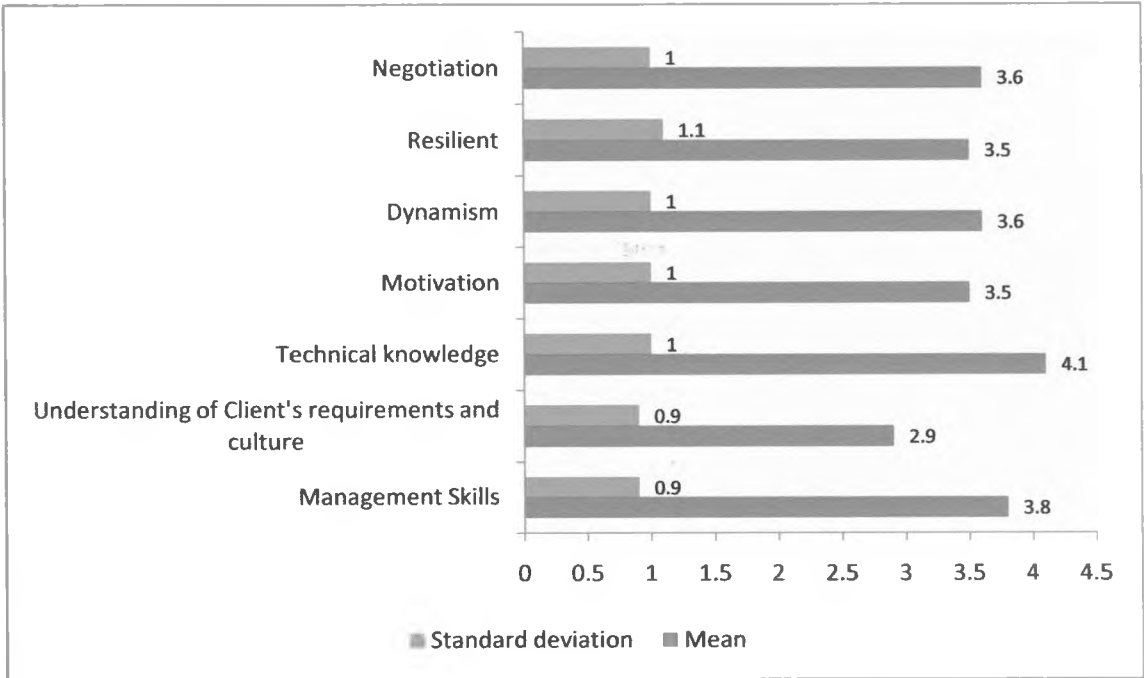


From the findings, 47.9% of the projects done had a budget estimate of Kshs 200 M to 499 M while 33.3% of the budgets were Kshs 500 M to 999 M. This implies that most projects undertaken and completed by the respondents estimated Kshs 500 million and below

**Table 4.2: Project period**

	Frequency	Percent
Within a month	3	6.3
Within quarter a year	19	39.6
Within half a year	17	35.4
Within a year	4	8.3
Over one year	5	10.4
<b>Total</b>	<b>48</b>	<b>100.0</b>

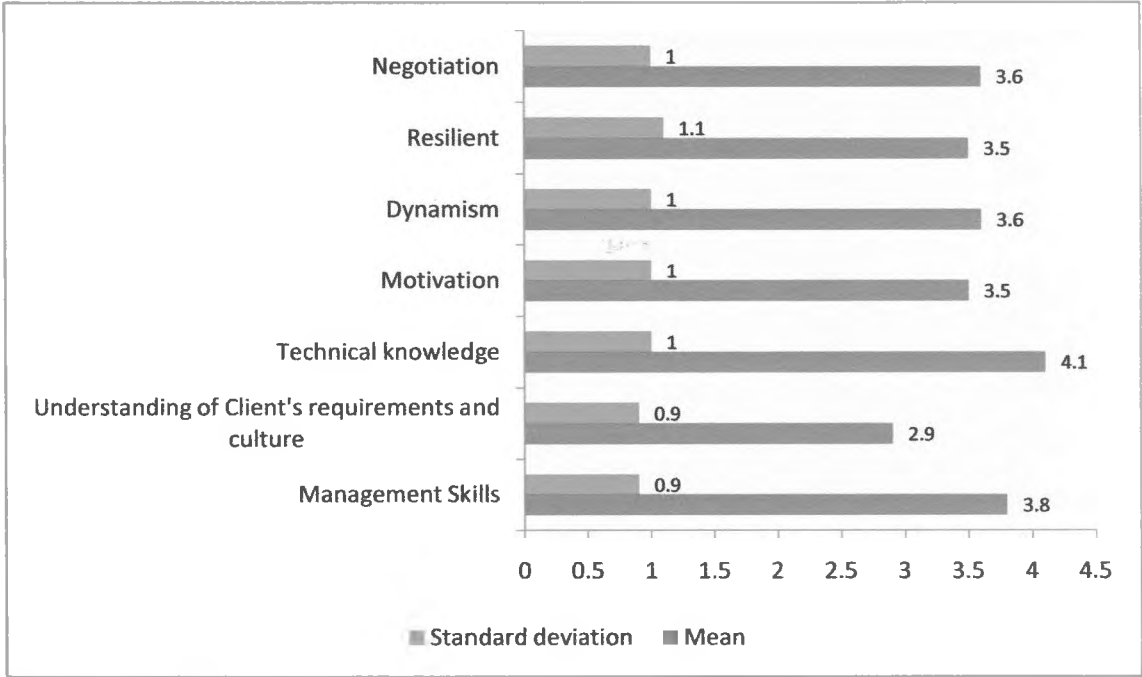
**Figure 4.3: The extent to which various skills and traits were exhibited by team leaders**



Findings on the extent to which various skills and traits were exhibited by team leaders showed that to a great extent, the team leaders were resilient with a standard deviation of 1.1. In addition to that, the team leaders applied their technical knowledge, looked to it that the team members were motivated and at the same time, the team leaders were dynamic to a great extent with a standard deviation of 1.0. While they practiced all the above skills, they did not undermine negotiation which they applied to a great extent too.



**Figure 4.3: The extent to which various skills and traits were exhibited by team leaders**

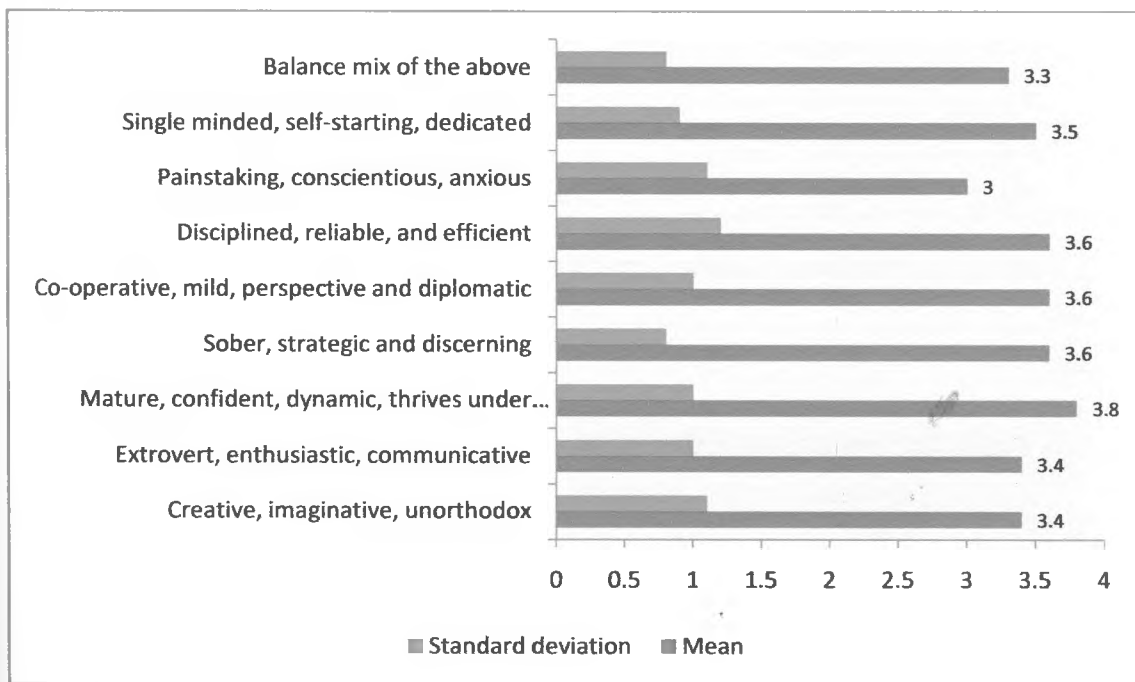


Findings on the extent to which various skills and traits were exhibited by team leaders showed that to a great extent, the team leaders were resilient with a standard deviation of 1.1. In addition to that, the team leaders applied their technical knowledge, looked to it that the team members were motivated and at the same time, the team leaders were dynamic to a great extent with a standard deviation of 1.0. While they practiced all the above skills, they did not undermine negotiation which they applied to a great extent too.

**Table 4.4: The extent to which various behavior were exhibited by team members**

	Mean	Standard deviation
Creative, imaginative, unorthodox	3.4	1.1
Extrovert, enthusiastic, communicative	3.4	1.0
Mature, confident, dynamic, thrives under pressure	3.8	1.0
Sober, strategic and discerning	3.6	0.8
Co-operative, mild, perspective and diplomatic	3.6	1.0
Disciplined, reliable, and efficient	3.6	1.2
Painstaking, conscientious, anxious	3.0	1.1
Single minded, self-starting, dedicated	3.5	0.9
Balance mix of the above	3.3	0.8

**Figure 4.4: The extent to which various behavior were exhibited by team members**



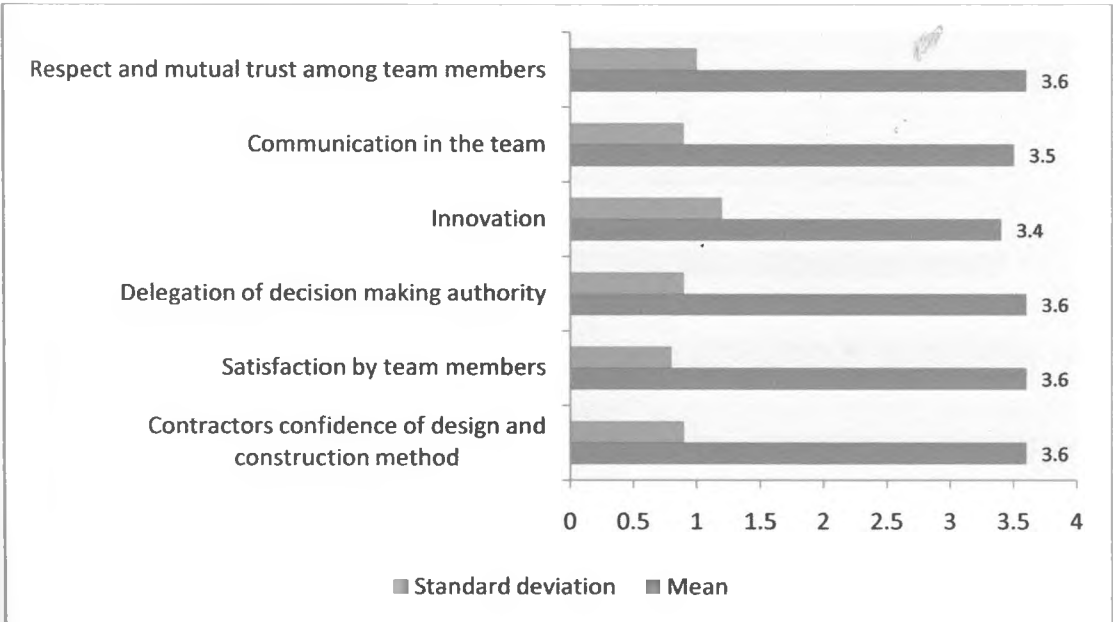
Regarding the extent to which various behavior were exhibited by team members, majority of the team members upheld discipline and reliability with a standard deviation of 1.2. They also displayed the trait of being creative, imaginative and unorthodox to a large extent with a standard deviation of 1.1. To a moderate extent, they were enthusiastic, communicative and also mature, confident, dynamic and thrived under

pressure. It is also imperative to note that the team members were to a moderate extent sober, strategic and discerning in their work. In addition to that, they cooperated to a great extent while upholding to a moderate extent. Single-mindedness and dedication was the least prevalent behavior with a standard deviation of 0.9. This implies that many of the team members have various behavioral characteristics which contribute to the successful ending of various construction projects. Some however needs to be pressurized in order to thrive in their work; a trait which should be eliminated at all costs.

**Table 4.5: The extent to which indicators of environment conducive to project performance was exhibited**

	Mean	Standard deviation
Contractors confidence of design and construction method	3.6	0.9
Satisfaction by team members	3.6	0.8
Delegation of decision making authority	3.6	0.9
Innovation	3.4	1.2
Communication in the team	3.5	0.9
Respect and mutual trust among team members	3.6	1.0

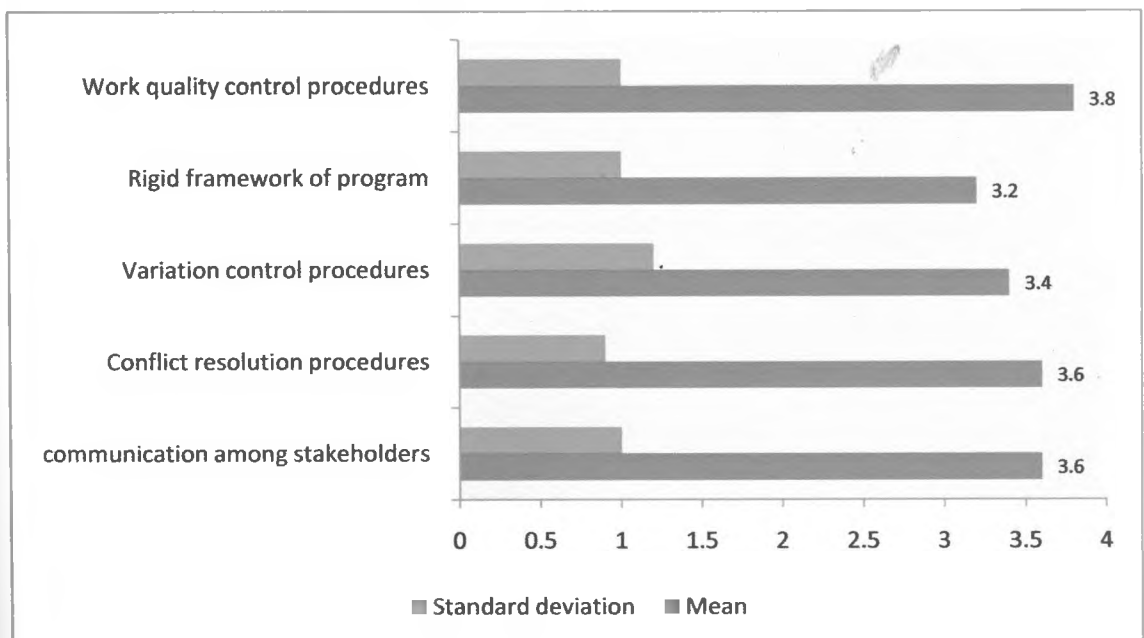
**Figure 4.5: The extent to which indicators of environment conducive to project performance was exhibited**



The researcher was also concerned with the extent to which indicators of environment conducive to project performance was exhibited. The respondents indicated that to a great extent, the contractors were confident with the design and construction methods. They also added that to a large extent, the team members were satisfied with their terms of work. Delegation of decision making authority by team leaders and communication in the team were practiced to a great extent. The virtue of respect and mutual trust among team members was also not undermined. It was applied to a great extent with a standard deviation of 1.0. The contractors' confidences with the design and construction methods, delegation of decision making authority by team leaders and communication in the team were practiced to some extent. On the contrary, the satisfaction of team members with their terms of work was less prevalent with a standard deviation of 0.8.

**Table 4.6: The extent to which various strategies were utilized in the project**

	Mean	Standard deviation
communication among stakeholders	3.6	1.0
Conflict resolution procedures	3.6	0.9
Variation control procedures	3.4	1.2
Rigid framework of program	3.2	1.0
Work quality control procedures	3.8	1.0



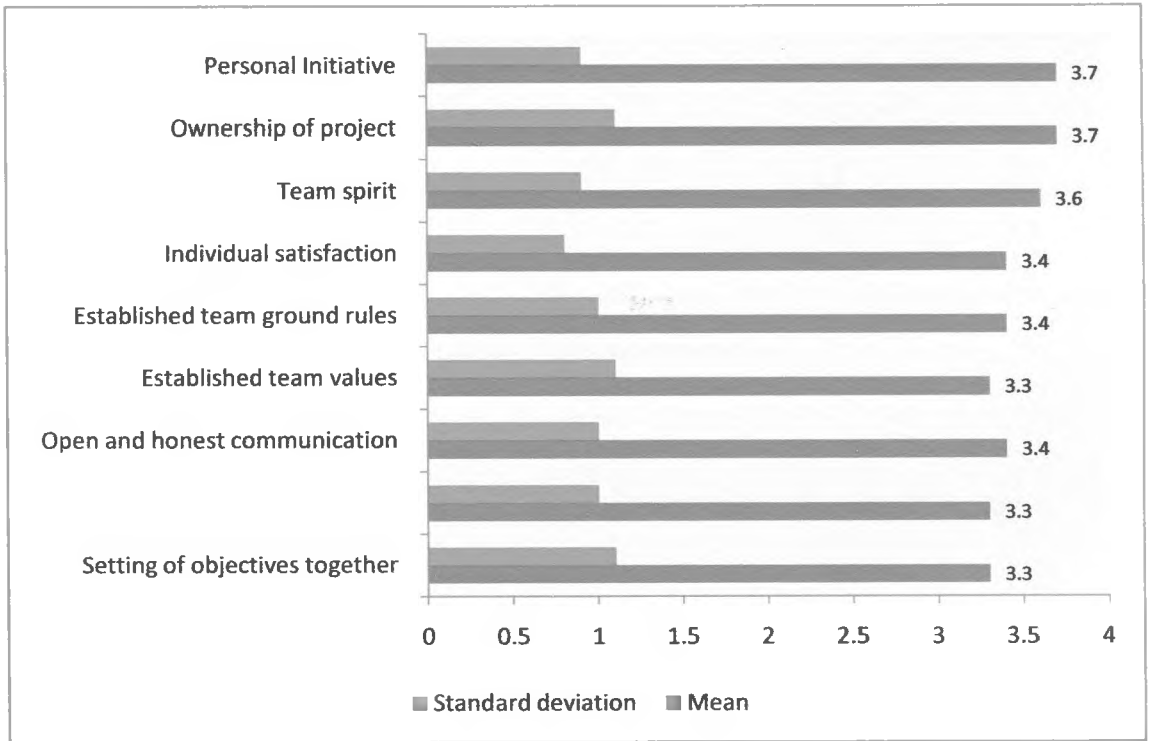
Concerning the extent to which various strategies were utilized in the project, majority of the respondents gave the opinion that variation control procedures were observed to a great extent with a standard deviation of 1.2 while undertaking the various projects. They also said that communication among stakeholders was implemented to a great extent with a standard deviation of 1.1. The framework of the program was also rigid for many projects to a great extent. Regarding conflict resolution procedures, the respondents said that they were observed to some extent with a standard deviation of 0.9.

#### 4.4 Effective teams

**Table 4.7: The extent to which the various factors were applied in the team**

	Mean	Standard deviation
Setting of objectives together	3.3	1.1
Preparing plans, roles and responsibilities together	3.3	1.0
Open and honest communication	3.4	1.0
Established team values	3.3	1.1
Established team ground rules	3.4	1.0
Individual satisfaction	3.4	0.8
Team spirit	3.6	0.9
Ownership of project	3.7	1.1
Personal Initiative	3.7	0.9

**Figure 4.6: The extent to which the various factors were applied in the team**

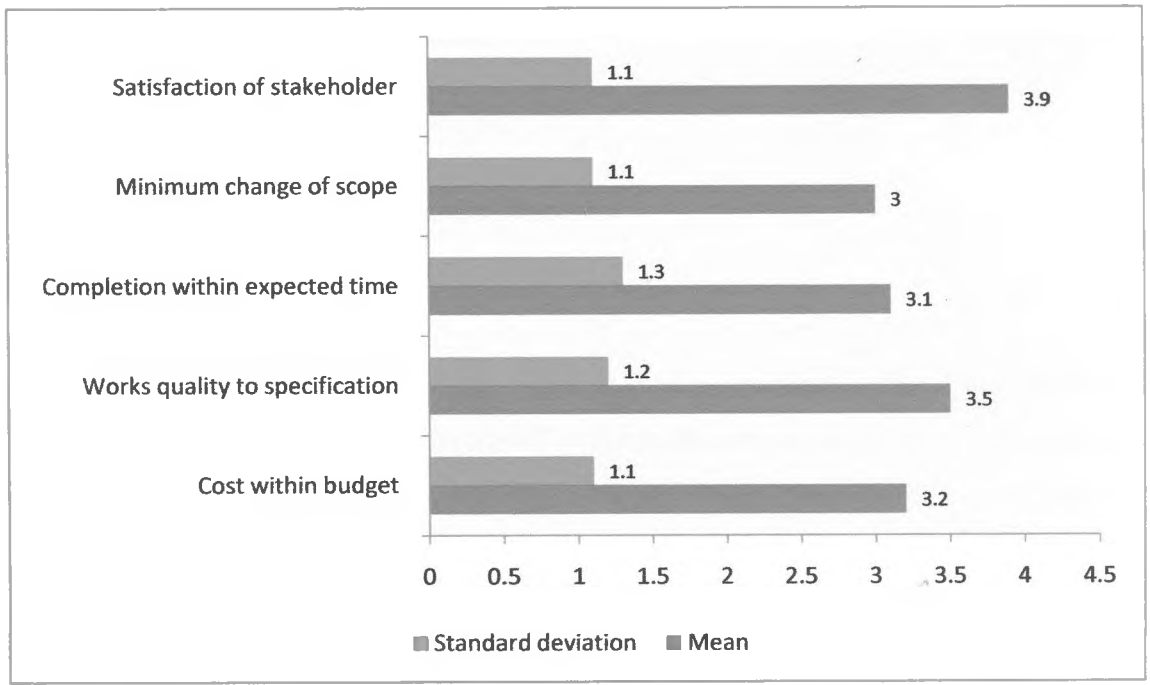


The researcher also sought to know the extent to which various factors were applied in the team. Findings revealed that setting of objectives together, established team values and ownership of the project were the most prevalent factors applied in the team with standard deviations of 1.1 each. In addition to that, open and honest communication, established team ground rules and preparation of plans, roles and responsibilities together formed part of the prevalent factors with standard deviations of 1.0, 1.0 and 1.0 respectively. On the other hand however, individual satisfaction was a less prevalent factor in the team with a standard deviation of 0.8. This implies that many of the team members undertaking construction projects embrace the idea of setting objectives together, establishing team values and ownership of the project.

**Table 4.8: The extent to which various targets were met**

	Mean	Standard deviation
Cost within budget	3.2	1.1
Works quality to specification	3.5	1.2
Completion within expected time	3.1	1.3
Minimum change of scope	3.0	1.1
Satisfaction of stakeholder	3.9	1.1

**Figure 4.7: The extent to which various targets were met**



With regard to the extent to which various targets were met, it is worth noting that completion within expected time was goal which to a very large extent was met with a standard deviation of 1.3 whereas work’s quality to specification a large extent met with a standard deviation of 1.2. In addition, cost within budget, minimum change of scope and satisfaction of stakeholder were also achieved though to moderate extent with 1.1 standard deviations each. This shows that among various targets set at the beginning of the project, it is easier to achieve completion of the project within expected time than to meet cost within budget.

## 4.5 Regression model

**Table 4.9: Correlation coefficients for model generation**

	Standardized coefficients		
	B	Beta	Sig
Constant	0.82		0.031
Team leadership	0.36	0.57	0.048
Team members	0.51	0.49	0.001
Project atmosphere	0.66	0.40	0.004
Project strategy	0.48	0.60	0.002

Given that the original model was:

$$Y = a_1 + b_1L + c_1Tm + d_1Pa + e_1Ps + \epsilon$$

The model can be generated as follows:-

$$Te = 0.82 + 0.57L + 0.49Tm + 0.40Pa + 0.60Ps + \epsilon$$

From the model, the constant value of 0.82 implies that team effectiveness will have an index of 0.82 when coefficients for all variable factors are zero. The results also indicate that a change in one unit of leadership will lead to a 0.57 unit of team effectiveness in the same direction. At the same time, change in team members, project atmosphere and by 1 unit in each, will result to a positive change in team effectiveness by 0.49, 0.40 and 0.60 units respectively. This is an indication that the four independent variables under investigation were positively related to the dependent variable (team effectiveness).



**Table 4.10: Multivariate R-Square**

<b>Model Summary</b>									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.81	0.656	0.599	0.27	0.66	18.30	4	43	0.000

$R^2$  is called the coefficient of determination and informs us on the proportion of the change in Team effectiveness that is caused by the change in explanatory variables. From Table 4.8, the value of R square was found to be 0.66 indicating that team leadership, team members, project atmosphere and project strategy explained 66% of any change in team effectiveness in construction industry. The study also reveals that the remaining 34% could be explained by other factors affecting team effectiveness. When F is greater than 1, the set of explanatory variables is considered to be significantly determining any changes in team effectiveness. Team effectiveness translates to teamwork performance.

The table below gives the correlation coefficients for the relationship between team effectiveness and project performance.

**Table 4.11: Correlation coefficients**

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.07	0.50		2.14	0.04
Effective Teams	0.65	0.14	0.56	4.62	0.00

Dependent Variable: Project Performance

Given that  $P_p = a_2 + b_2 TE + \epsilon_2$

We can therefore derive the relationship between team effectiveness and project performance as follows:

$$P_p = 1.07 + 0.56 TE + \epsilon_2$$

This implies that when index for team effectiveness is held at 0(zero), project performance will be 1.07, i.e. poor performance. In addition, a change in 1 unit of team effectiveness results to a change in project performance by 0.56 units. At its best, that is, when team effectiveness is at 5, project performance would be calculates as follows:

$$P_p = 1.07 + 0.56 (5) = 3.87, \text{ i.e. performance is above average but below excellence.}$$

The difference, from excellence performance, i.e. 5, is 1.13. This implies that, the remaining 1.13 is the error term, contributed by other factors that influence project performance beside team effectiveness.

**Table 4.12: Model summary**

Model Summary									
Model	R	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
del	R Square			R Square Change	F Change	df1	df2	Sig. F Change	
1.00	0.56	0.32	0.30	0.32	21.33	1	46	0.00	
a. Predictors: (Constant), Effective Teams									

The model summary indicates that at 95% confidence level, team effectiveness is a significant explanatory variable for any change in project performance, the magnitude of which is explained by the coefficient of determination ( $R^2$ ). From the results team effectiveness explains 32% of any change in project performance. The remaining 68% is explained by other factors not captured in this bi-variate model.

#### 4.6 Discussion

From the study, various skills and traits exhibited by team leaders are behind the success of every construction project undertaken. According to Smith and Wilkins, (1996), team leaders should possess all the necessary skills of a project manager, namely leading, planning, organizing and coordinating skills and perform to the greatest extent of their capability. They should have a clear understanding of the Client's brief and be mindful to the business and cultural aspects of the company (Deakin, 1999). As construction projects require design inputs from the contractor, its team leader should be able to first develop Client's requirements by clearly formulating the intensions of the Client (Leung, 1999).

The study indicated that, the teams are normally constituted of building consultants whose training is varied, from pure science for engineers to pure art for architects. This allows a wide variation in natural traits hence a well mixed team. Team work is one of the most important aspects in any organization or company. This is because in a team, many skills are exhibited by various team members and at the same time, members

complement each other where one member does not know, the other member does. At the end of it all, high quality work is produced from combined efforts. As the saying goes, two hands are better than one. The study also shows that most team workers undertaking construction projects are innovative to a very large extent respect and trust each other. There is nothing as devastating as living or working with someone you do not trust. If anything good is to come out, then two or more people working together should cultivate trust and respect towards each other. It is also of significant importance that people involved in any task open their minds to new horizons of ideas through innovation. This will enhance increase in knowledge not just for that particular task but also to be applied in future projects.

Contractors in the building industry are normally obtained from a register prepared by the Ministry in charge of building. In this list the contactors are shortlisted in term of experience and capacity. Small firms are given small project and visa-a-vis. This eliminates the problem of awarding a contractor a project that he cannot appreciate both in design and in construction method to apply. Since most teams usually have a member from each profession, the member is relying on in his area of expertise. This gives the member full control of his area hence encouraging innovation and with this, satisfaction is guaranteed. Learning to respect and trust one another's' respective role in the construction process and recognizing the risk inherent with those roles is important for team synergy and project success (Smith & Wilkins, 1996). This implies that controlling variations among members is the most prevalent strategy applied by team members doing construction projects.

Construction of building is an expensive affair and hence the stakeholders are normally people of means, above average in education and highly exposed. This makes it mandatory for the professionals to continuously inform their queries and demands. Not having open lines of communication (protocols), inappropriate communication channels (inefficient and/or ineffective), and unexpected communication breakdown are factors, that have lead to surge in the formation of construction networks (Weatherley, 2006).

Industrial institution and professional bodies have come up with standard forms for agreements which cover requirement for programming, procedures for controlling variations, and works quality control and dispute resolutions. This has made it easy for teams to prepare customized programs and procedures. The greatest challenge that can hinder success in any project done by a team is conflict among members. It is therefore crucial that the team leaders come up with strategies to control the differences among various team members and to resolve conflicts whenever they occur. This will ensure that there is harmony among the team members which will in turn result in effective team working hence quality output.

It is of significant importance that in a team working together towards a goal, there should be open and honest communication. This will ensure that when one member gets to know something, he/she will share with the rest of the members which in turn prevents the issue of some members feeling like they know better than others. It will also provide room for members to correct each other where one thinks they know when they really don't. In addition, any company or organization dealing with production of certain goods or offering services should set objectives to guide the workers on what is expected at the end of the task. It is important that the team members stick to the defined objectives while in the project. This will increase chances of success as opposed to moving away from the set objectives.

Building construction professional, in a team, are each distinctly unique as none one of them can perform the duties of the other. This forces all members to appreciate their differences and hence the need to work together. Often when people from different professions work together on a team they tend to look or approach an issue from different points of views (Weatherley, 2006). Similarly, since each member's involvement is unavoidable with responsibility clearly obvious, personal initiative and ownership of the project is manifested. Teamwork in construction has been widely researched by a number of researchers (Baiden, 2006), and the findings have clearly illustrated that best construction project performance is achieved when the whole project team is fully integrated and aligned with project objectives. In a study by Granath and Hinnerson

(2002) it was noted that although there is an agreement on the values and objectives of a project, there is a risk that these will change due to the project processes of today.

With the improved governance in the country, requiring performance contracting of Government personnel and increased competition in the property market, clients have demanded strict control of cost and delivery time. Properties are often sold off plan and therefore any increase in cost is totally discouraged by the investors. Sometimes this may encourage lowering of specification to make bigger margin. But with the responsibility fall under the professional consultant this is normal checked and avoided.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents summary of findings, conclusions and recommendations.

#### 5.2 Summary of findings

The purpose of this study was to establish the factors leading to effective team work management of professional firms in the building construction industry in Kenya, to determine the extent to which teamwork management of professional firms has been employed in the construction industry in Kenya; to evaluate the relationship between teamwork management of professional firms in the construction industry and successful completion of construction projects in Kenya and to establish the challenges facing the teamwork management of professional firms in the construction industry in Kenya. The proposed research population was all professionals in the construction industry registered with the Ministry of Public Works, Kenya for Engineers and those registered by The Architectural Association of Kenya for Architects and Quantity Surveys.

Findings on the extent to which various skills and traits were exhibited by team leaders showed that to a great extent, the team leaders were resilient, with a standard deviation of 1.1. In addition, the team leaders applied their technical knowledge, looked to it that the team members were motivated and at the same time, the team leaders were dynamic to a great extent with a standard deviation of 1.0. While they practiced all the above skills, they did not undermine negotiation which they applied to a great extent too. Regarding the extent to which various behavior were exhibited by team members, majority of the team members upheld discipline and reliability with a standard deviation of 1.2.

The findings also revealed that, effective teamwork is determined by good team leadership, project atmosphere, project members and project management strategies. This is explained by the fact that, a change in one unit of leadership will lead to a 0.57 unit change in team effectiveness in the same direction. At the same time, change in team

members, project atmosphere and by 1 unit in each, will result to a positive change in team effectiveness of 0.49, 0.40, and 0.60 respectively. The autonomous value was 0.82 implying that team effectiveness will have an index of 0.82 when coefficients for all variable factors are zero. The results also indicate that a change in one unit of leadership will lead to a 57% change in team effectiveness in the same direction. The  $R^2$  for the multi-variate model confirms that the influence of the independent variables have on team effectiveness in their clustered capacity is significant at 66%. The study also reveals that the remaining 34% could be explained by other factors affecting team effectiveness.

Regarding the relationship between team effectiveness and project performance, the study reveals that a change in one unit of team effective results to change in project performance by 0.56 in the same direction with team effectiveness explains 32% of any change in project performance.

### **5.3 Conclusion**

The success of any activity done as a group relies on the leaders of the group. A slight mistake by the leader affects the entire team. It is therefore of significant importance that the team leaders be wise and have the necessary skills that it takes to make the work end successfully. It is also of significant noting that people involved in any task should open their minds to new horizons of ideas through innovation. This enhances increase in knowledge not just for that particular task but also to be applied in future projects. The greatest challenge that can hinder success in any project done by a team is conflict among members. It is therefore crucial that the team leaders come up with strategies to control the differences among various team members and to resolve conflicts whenever they occur. They will ensure that there is harmony among the team members which will in turn result in effective team working for quality output.

It is of significant importance that in a team working together towards a common goal, there should be open and honest communication. This will ensure that when one member gets to know something, he/she will share with the rest of the members which in turn prevents the issue of some members feeling like they know better than others. It will also provide room for members to correct each other where one thinks they know when they



really don't. This will increase chances of success as opposed to moving away from the set objectives. Whenever one decides to embark on a task say academic, business or even building, he/she must be well set and should have extra finance because of emerging extra spending as the project progresses. It is also crucial that the stakeholders ensure that the specified work quality is achieved with minimal or no diversions from the set quality target.

#### **5.4 Limitations of the study**

The researcher encountered difficulties during data collection and analysis. In particular, the time frame was a challenge since there were common cases of target respondents being in the field for project supervision. At the same time, other respondents felt that the information needed was too confidential to be disclosed. To mitigate these effects, the respondents were given an assurance that findings would be made confidential and used only for the intended purpose.

#### **5.5 Recommendations**

In the attempt to establish the factors leading to effective team work management of professional in the building construction industry in Kenya, the researcher recommends that;

- i. Though teamwork management is employed to a great extent among the building professionals in Kenya, team management courses should be incorporated in the training of professional to enhance their skills to higher levels.
- ii. Professionals should work in teams as opposed to functional structure as there is positive relationship between team effectiveness and project performance.
- iii. To capture challenges experienced in projects, the Government should come up with laws requiring maintenance of records by professional bodies, of events in building projects. This would facilitate, among others, continuous improvement of team management.

## 5.6 Suggestions for further studies

Given the scope and limitations of this study, the researcher suggests the following for further studies:

- i. A study should be performed on factors leading to effective team work management for comparative purpose because the study indicated a high error term. This would enable the research to reach a more concrete conclusion;
- ii. The scope of this study should be expanded to include other variables not identified in this study as captured in the error term;
- iii. To compare the effectiveness of team work management across the different sectors of the economy, a study on teamwork management and the effects on organizational performance should be carried in an industry other than the construction.

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# APPENDICES

## Appendix I: Questionnaire

### PART A: DEMOGRAPHIC INFORMATION

- 1) Name of respondents (Optional): \_\_\_\_\_
- 2) Profession: \_\_\_\_\_
- 3) Name of firm: \_\_\_\_\_
- 4) Designation of the respondent: \_\_\_\_\_
- 5) Building Project name (Optional): \_\_\_\_\_
- 6) Project Budget: \_\_\_\_\_
- 7) Original Expected Completion Period: \_\_\_\_\_

For each statement, please indicate by ticking the appropriate rating that describes your opinion from your past experience of working in a team for the above building construction project in which fit the purpose of this questionnaire

### PART B: Factors Affecting Team Management

#### 1. Team Leadership

To what extent was the following skills and trait exhibited by the team leader?

	1 Least extent	2 Less extent	3 Moderate	4 Great extent	5 Greatest extent
a) Management Skills					
b) Understanding of Client's requirements & culture					



	1 Least extent	2 Less extent	3 Moderate	4 Great extent	5 Greatest extent
c) Technical Knowledge					
d) Motivation					
e) Dynamism					
f) Resilient					
g) Negotiation					

## 2. Team Members

To what extent was the following behavior exhibited by the team members

	1 Least extent	2 Less extent	3 Moderate	4 Great extent	5 Greatest extent
a) Creative , imaginative, unorthodox					
b) Extrovert, enthusiastic, communicative					
c) Mature, confident, dynamic, thrives under pressure					
d) Sober, strategic and discerning					
e) Co-operative, mild, perspective and diplomatic					
f) Disciplined, reliable, and efficient					
g) Painstaking, conscientious, anxious					

	1 Least extent	2 Less extent	3 Moderate	4 Great extent	5 Greatest extent
h) Single minded, self-starting, dedicated					
i) Balance mix of the above					

### 3. Working Environmental

To what extent was the following exhibited in the project?

	1 Least extent	2 Less extent	3 Moderate	4 Great extent	5 Greatest extent
a) Contractors confidence of design and construction method					
b) Satisfaction by team members					
c) Delegation of decision making authority					
d) Innovation					
e) Communication in the team					
f) Respect and mutual trust among team members					

#### 4. Project Strategy

To what extent was the following strategies utilized in the project?

	1 Least extent	2 Less extent	3 Moderate	4 Great extent	5 Greatest extent
a) communication among stakeholders					
b) Conflict resolution procedures					
c) Variation control procedures					
d) Rigid framework of program					
e) Work quality control procedures					

#### PART C: Effective Teams

To what extent was the following exhibited in the team?

	1 Least extent	2 Less extent	3 Moderate	4 Great extent	5 Greatest extent
a) Setting of objectives together					
b) Preparing plans, roles and responsibilities together					
c) Open and honest communication					
d) Established team values					
e) Established team ground rules					

	1 Least extent	2 Less extent	3 Moderate	4 Great extent	5 Greatest extent
f) Individual satisfaction					
g) Team spirit					
h) Ownership of project					
i) Personal Initiative					

### Part D: Project Performance

To what extent was the following met?

	1 Least extent	2 Less extent	3 Moderate	4 Great extent	5 Greatest extent
a) Cost within budget					
b) Works quality to specification					
c) Completion within expected time					
d) Minimum change of scope					
e) Satisfaction of stakeholder					

**Part E: Other Factors**

- 8) From your past working experience in building construction projects, please specify any other factor(s) that may influence teamwork and provide your opinion below:

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