FACTORS INFLUENCING COMPLETION OF BUILDING PROJECTS IN KENYA, MINISTRY OF LAND, HOUSING AND URBAN DEVELOPMENT, NAIROBI COUNTY

BY

WANJAU BEATRICE NYAMBURA

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2015
DECLARATION

This project is my original work and has not been presented for academic purposes in the University of Nairobi or any other University.

Signed ...........................................  Date ..................................................

WANJAU BEATRICE NYAMBURA

L50/76917/2009

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

Signed ...........................................Date ..................................................

Eng. James Wachira Theuri

Lecturer,

Department of Extra-Mural Studies

University of Nairobi
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I wish to acknowledge my supervisor who tirelessly corrected and guided me in the formulation and execution of the whole process of completing this Project. I take this opportunity to thank everyone else who may have played a role in one way or another in facilitating the execution of this research.
DEDICATION

I wish to dedicate this work to the Almighty God who gave me good health and the ability to do the work and my husband, Fervent Kimani Thambi for his understanding, support and love and my parents for their inspiration and support.
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### ABBREVIATIONS AND ACRONYMS

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<th>Abbreviation</th>
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<tr>
<td>BOT</td>
<td>Build Operate-Transfer</td>
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<tr>
<td>CSC</td>
<td>Contractor Selection Criteria</td>
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<td>CSF</td>
<td>Critical Success Factors</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>ICT</td>
<td>Information Communication Technology</td>
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<td>NEPAD</td>
<td>New Partnership for Africa’s Development</td>
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<td>PFI</td>
<td>Project Finance Initiative</td>
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<tr>
<td>SPSS</td>
<td>Statistical Package for Social Science</td>
</tr>
<tr>
<td>UNCTAD</td>
<td>United Nations Commission for Trade and Development</td>
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<td>USA</td>
<td>United States of America</td>
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ABSTRACT

The construction industry is a key industry in the economy of any country worldwide. It is one of the biggest industries in the world contributing to around 10% of the global GDP. Developments in the construction industry are increasing in size, technology complexity, interdependencies, and variations in demands from clients. The success of any project is highly dependent on its completion time from start to delivery of results. This has a direct bearing on management decisions such as budgets, targets and standards. In any construction organizations, the quality and delivery of the final product to the community can play a crucial role in improving future development and long term survival of such organizations. Completion of a given project along the three critical dimensions of time, cost and quality, requires detailing all the planning requirements. This could be achieved by identifying preconstruction planning factors and describing them in a process that takes into account all the preconstruction planning aspects. It is in this line that this study explored the factors influencing the completion of building projects in Kenya. The design of this research was a descriptive survey research. The population for this study was composed of 136 managers from the Ministry Of Land, Housing and Urban Development, Nairobi County. The study used a semi structured self-administered questionnaire to collect data from the managers in the Ministry Of Land, Housing and Urban Development. Questionnaires items were closed ended or open ended type. The study also used interview guide to obtain answers from representatives in the Ministry Of Land, Housing and Urban Development. Questionnaires were delivered to the respondents and were collected by research assistant. Face to face interviewing was adopted to obtain answers from representatives in the Ministry of Land, Housing and Urban Development. The collected data was analyzed using both quantitative and qualitative data analysis methods. Quantitative method involved descriptive analysis. Descriptive analysis such as frequencies, percentages were used to present quantitative data in form of tables. Data from questionnaire was coded and logged in the computer using Statistical Package for Social Science. The study found out that there is a positive relationship between completion of building projects and business related factors, project procedures, project management factors and human related factors of magnitude 0.638, 0.764, 0.622 and 0.529 respectively. The study recommends that organizations must provide clear guidance on how to measure the outcome of a building project. The project managers must always bear in mind that successful project management techniques will contribute to the achievement of projects, but project management will not stop a project from failing to complete. Project managers need to be aware of their project technology preferences and provide the tools and equipment to the project team as they can be more motivated. Further research should be conducted all building firms to investigate into the challenges facing project implementation.
1.1 Background of the Study

The construction industry is a key industry in the economy of any country worldwide. It is one of the biggest industries in the world contributing to around 10% of the global GDP (Nguyo, 1988). The resources utilized in this industry add to 50% of the world resources (Economy Watch, 2010). With such an impact on the world economy and resources, it is prudent that activities within this industry are efficiently and effectively planned. Every country in the world including Kenya to some extent has an active construction industry as virtually every service requires facilitation from the construction industry.

Developments in the construction industry are increasing in size, technology complexity, interdependencies, and variations in demands from clients. The contribution of the built environment to the GDP provides an indication of the importance of the sector. The completion of projects in a timely manner is often a critical factor and measure of project success. In recent years, there has been an increasing interest in the use of projects as building blocks in the strategic management of organizations (Weiss & Potts, 2012). The success of any project is highly dependent on its completion time from start to delivery of results. This has a direct bearing on management decisions such as budgets, targets and standards (Seddon, 2008). There is available evidence from literature on how to use projects for the management of organizational process to prepare the organization for its competitive future and survival (Cleland & Ireland, 2007). Today, project management techniques are used as the principal means by which operational and strategic issues are managed in both for-profit and not-for-profit organizations.

In any construction organizations, the quality and delivery of the final product to the community can play a crucial role in improving future development and long term survival of such organizations. Effective service delivery refers to producing work that is of high quality and recognized as efficient (Cole, 2002). The long-term objective of any organization is to produce high quality projects measured against the traditional measures of time, cost and scope (Basu, 2014). Tools and techniques play an important role in project management. However, the factors...
that directly affect the timely completion of projects are rarely discussed as costs and deliverables often take a lead (Shehu and Akintoye, 2009).

In the United Kingdom, Li, Akintoye, Edwards and Hardcastle (2005) contends that effective procurement, project implementation ability, government guarantees, and favorable economic conditions are critical success factors (CSFs) for public-private partnership projects. In Bulgaria, Alexandrova and Ivanova (2012) considers competence of project manager, competence of project team, quality of subcontractor services, and top management support as CSFs of project management. In Lithuania, Gudiene, Ramelyte and Banaitis (2013) states that project management’s experience, project value, project manager’s experience, experience of contractor, project size, competence of project team members, clear and realistic goals, decision making effectiveness of project management, and technical capability of project management are the most important success factors for construction projects.

In Africa, the challenge of timely project delivery can take multiple dimensions depending on the project’s environment. A study by United Nations Commission for Trade and Development (UNCTAD), (2001) on African construction industry’s turmoils and their implications for New Partnership for Africa’s Development (NEPAD) identified costly project delays as a major problem and identifies poor project time, quality and cost performance as a major issue.

In 1999, the public sector investment in construction in South Africa was 7.49%. During the 1960s and 1970s, there was a sharp rise in construction expenditure and investment. It was around four times the rate of the GDP. Stern and Teljeur (2002) say that substantial parts of the country’s infrastructure were developed during the 960s and 1970s. In spite of a few temporary booms in the 1980s, construction activity has been on a steady decline. There was a severe downturn in the early 1990s, when output fell to 10% per annum for the years 1991 and 1993. During the second half of the 1990s, construction activity stabilized and marked the long-term decline in the industry.

In Ghana, Frimpong et al, (2003) identified five factors as the major causes of delays to projects. These include monthly payment difficulties to contractors, poor contract management, material procurement difficulties, poor technical performance and material price escalations. Poor professional management, fluctuation of prices, rising cost of materials and poor site
management have also been identified as factors causing a delay in project completion time. In order to forestall the challenge of timely project delivery, Samuel (2008) recommends that project time management be a key priority for the contractors and that the appointment of a registered project manager for each contract should be a mandatory condition of tender. In Kenya, the construction industry contributes up to 5% of the National GDP as reported in the Economic Survey and contributes 10% to employment nationally (Republic of Kenya, 2010a). Its contribution is valued at 50% in terms of demand which is a significant proportion from a single Client (Nguyo, 1988). The provision of infrastructure consumes about 10% of the National Budget as indicated in the Printed Estimates (Republic of Kenya, 2011) In Kenya, delays of projects are rampant especially due to endemic corruption and poor reporting structures among the public sector (DFID, 2013). It is acknowledged in the Kenya Vision 2030 that a modern and result focused public service is a prerequisite for the country’s socio-economic transformation (Republic of Kenya, 2007). Further, the Constitution of Kenya in the Bills of rights gives every citizen the right to enjoy efficient and quality public services (Republic of Kenya, 2010b).

In the last three decades, construction research in Kenya has focused on the entities that constitute the construction industry – particularly the projects, the contractors and human resources—deducing the performance of the industry as a whole from the observations made on its parts. Key areas of research have been procurement methods (Mbaya 1984, Kithinji, 1988 and Mbatha 1993); project execution – cost overrun & time overruns and construction resources (Wachira 1996, Talukhaba 1999, Gichunge 2000, Wanyona, 2005, Masu 2006 and, Muchungu, 2012) and indigenous contractors and marketing (Magare; 1987 and Gitangi, 1992). It is evident that construction projects in Kenya are supervised by very qualified human resources; who end up failing; an example is the extension by two floors of the school of Built environment building at the University of Nairobi which was supervised by Professors teaching at the same school.
1.2 Statement of the Problem

The inability of the client, his/her representative, and the project team to have a comprehensive overview of the construction process from inception to completion is a very likely reason for the non-realization of projected delivery dates. They are also unaware of environmental effects on the construction process. This view is supported by Sambasivan and Soon (2007), who declare that the problem of delays in the construction industry is a global phenomenon. The construction process comprises many tasks. Task management, assumes that certainty prevails in production. However, it is widely observed that, due to the inherent variability of production in construction, the intended task management degenerates into mutual adjustment by teams on site (Radosavljevic and Horner, 2002).

Researchers, clients, contractors and professionals are concerned about this phenomenon, which results in inefficient production, and delayed projects. It is plausible that the phenomenon is a result of not considering the influence of stakeholders on a contract. Previous studies have identified project personnel, communications, site management, supervision, client competencies, contactor competencies, top management support, project manager’s experience amongst others as determinants of completion of various projects around the globe (Li et al, 2005; Gudiene et al, 2013; Yong, 2013; Chan et al, 2001; Alexandrova et al, 2012; Ondari, 2013). Most of these studies conducted on determinants of completions of projects have focused on developed countries outside Africa. Therefore, the study sought to investigate the factors influencing the completion of building projects in Kenya by looking at the Ministry of Land, Housing and Urban Development, Nairobi County.

Successful completion of a given project along the three critical dimensions of time, cost and quality, requires detailing all the planning requirements. This could be achieved by identifying preconstruction planning factors and describing them in a process that takes into account all the preconstruction planning aspects. The literature reviewed does not identify such a study that explores the factors influencing the completion of building projects in Kenya. This is despite the fact that about 48% of the building projects in Kenya show poor performance in terms of completion time, cost overruns and client satisfaction (Muchungu, 2012). This study therefore sought to fill this gap by establishing the factors influencing the completion of building projects in Kenya with reference to Ministry of Land, Housing and Urban Development, Nairobi County.
1.3 Purpose of the Study

The purpose of this study was to establish the factors influencing the completion of building projects in Kenya a case study of Ministry of Land, Housing and Urban Development, Kenya

1.4 Objectives of the Study

This study was guided by the following objectives:

i. To determine the influence of business related factors on the completion of building projects in Kenya.

ii. To assess the effect of influence procedures on the completion of building projects in Kenya.

iii. To establish the influence of project management factors on the completion of building projects in Kenya.

iv. To establish the influence of human related factors on the completion of building projects in Kenya.

1.5 Research Questions

The study sought to answer the following questions

i. What is the influence of business related factors on the completion of building projects in Kenya?

ii. To what extent do project procedures influence the completion of building projects in Kenya?

iii. What is the influence of project management factors the completion of building projects in Kenya?

iv. How do human related factors influence the completion of building projects in Kenya?

1.6 Significance of the Study

This study will be of significance to implementing agencies in the country. The findings of study will be important to the Kenyan government through the relevant Ministries to improve the state of the projects by getting information about the timely completion of projects in the country. The study will be valuable to World Bank and other development partners that invest a lot of resources in funding various development projects especially in the construction sector of the country.
the economy. The study will also be used by other researches and scholars for relevant desk research and literature reviews by providing a basis of further research.

1.7 Delimitation of the Study

This study was set out to analyze the factors influencing the completion of building projects in Kenya. The study was carried out in Ministry of Land, Housing and Urban Development headquarters located in Nairobi where the management staff were the key respondents. The study was limited to four variables that is, top management support stakeholder influence, information technology and organization structure.

1.8 Limitations of the Study

The study encountered time constrain as the period allocated for the study is limited and has to combine the study and work given that the researcher is employed. The study, therefore, focused on a small proportion of the total population as a representative of all the possible respondents. The study also may have encountered financial constrains in the research process given that the researcher is self-sponsored.

1.9 Basic Assumptions of the Study

The researcher made the assumption that the respondents would be cooperative enough to give the required information of the study. The researcher further assumed that all information that would be collected from respondents would be true to give a clear and true picture. The researcher also assumed that external factors like strike would not arise as this would affect the process of data collection and hence the completion of the project. The researcher assumed that the cited respondents had some knowledge on projects.

1.10 Definition of the Terms

**Business related factors** these are issues in connection to an organization or enterprising entity engaged in commercial, industrial or professional activities

**Project procedures** refers to collected set of the management and administrative procedures needed for the project
**Project management** is the process and activity of planning, organizing, motivating, and controlling resources, procedures and protocols to achieve specific goals in scientific or daily problems.

**Human related factors** refers to the aspects concerned with the understanding of interactions among individuals and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize individual well-being and overall system performance.

**External environment** refers to the conditions and events outside a project that affects the way it operates. As the external environment evolves, project goals must evolve to reflect this changing environment.

**Project location** refers to the position where a project is intended to be located.

**A government policy** refers to a plan or course of action of a government, intended to influence and determine decisions, actions, and other matters.

1.11 **Organization of the Study**

The study is organized into five chapters. Chapter one contains the introduction to the study. It presents background of the study, statement of the problem, purpose of the study, objectives of the study, research questions, significance of the Study, delimitations of the study, limitations of the Study and the definition of significant terms. On the other hand, chapter two reviews the literature based on the objectives of the study. It further looked at the conceptual framework and finally the summary. Chapter three covers the research methodology of the study. The chapter describes the research design, target population, sampling procedure, tools and techniques of data collection, pre-testing, data analysis, ethical considerations and finally the operational definition of variables. Chapter four presents analysis and findings of the study as set out in the research methodology. The study closes with chapter five which presents the discussion, conclusion, and recommendations for action and further research.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature review on factors that influence success in large construction projects. The literature discussed is a summary of research findings of other researchers who have carried out their research in the same field of study so as to provide a theoretical foundation underpinning the study variables. A discussion is made of the concept of project success criteria, a review of empirical studies on the various factors, conceptual framework and finally the research gap.

2.2 Business Related Factors and Completion of Building Projects

Various researchers support ‘‘environment’’ as a factor affecting the project success (Walker and Vines 2000). Akinsola et. al. (1997) further described ‘‘environment’’ as all external influences on the construction process, including social, political, and technical systems. The attributes used to measure this factor are economic environment, social environment, political environment, physical environment, industrial relation environment, and level of technology advanced.

The comfort component grouping comprises adequate funding through the project, comprehensive contract documentation, availability of resources, continuing involvement of all stakeholders in the project, and competent project manager. This component emphasizes that successful projects are implemented in comfort. That is, money, resources, efforts and leadership should always be available throughout the project’s life. They ensure that construction projects run smoothly. Money and other resources in terms of adequate funding until project completion and availability of resources are obvious imperatives to carry out projects. Availability of funds/resources has also been ranked highest in recent researches (Belassi and Tukel, 1996; White and Fortune, 2002).

Efforts are needed to ensure the existence of general agreements and collective genius of professionals in concerned organizations as well as proper project control. Similarly, one of the four CSFs in Sanvido et al. (1992) were a series of contracts that allows and encourages the
various specialists to behave as a team without conflicts of interest and differing goals. These contracts must allocate risk and reward in the correct proportions. Also, it has been stated that project goals and deliverables cannot be achieved without the customer or end user involvement in the project (Dvir et al., 2003).

Leadership is also a crucial aspect in project management. Caudron (1999) noted three different kinds of competencies required in leadership: leadership competencies such as the ability to lead change, functional competencies such as technical and human resource management skills, and personal skills such as high achievement motivation and persistence. Zimmerer and Yasin (1998), in their research in USA, observed that the highest rated characteristics for effective project managers and for project success were team building, communicating, demonstrating trust, and focusing on results among others. Therefore, a competent project manager possesses not only technical and managerial skills but also good leadership to do the “right thing right” and search suitable tangible and intangible assets in today’s knowledge-based economy.

2.3 Project Procedures and Completion of Building Projects

Quality performance has been considered as a function of the procedures adopted during the construction process (Serpell and Alarcon, 1998). Those procedures comprise the concept of procurement, form and the method of tendering. The fragmented nature of the construction industry, the fact that no two construction projects are identical and the resulting ephemeral nature of the project organization places great dependence on the project team in setting up the building process and bringing the project to a successful conclusion (Davenport, 1995). To ensure success, the selection of the most appropriate organisation for the design and construction of the project requires early and particular attention.

In the main, the construction team will be appointed under competition through competitive tendering process. Sometimes, the head contractor may be appointed by negotiation on the basis of a fee. In cases where the design and construction is done as a complete package, both may be let by competition. The selection procedures applied to the members of the project team are therefore by no means always the same. It was noted from previous research that competitive tendering can adversely affect the outcome of major projects and the number of separate contracts is related to the chances of success. Different selection methods will pose different
levels of risk to the project team members (Kumaraswamy and Dissanayaka, 1998; Chan, 1995). Systems such as competitive tendering would involve a higher degree of risk to the team member, whereas cost reimbursement contracts would be low risk bearing by comparison.

Hersey and Blanchard (1982) have also identified the importance of clear goal definition to management success. Sidwell (1984) echoes this by advocating that clients who get the best results are those who provide the building team with well defined specialized needs and are able to become closely involved with the building process. All these suggest that a clear and well-defined goal will lead to a more successful outcome on project performance.

Project management action is a key for project success (Hubbard 1990). Jaselskis and Ashley (1991) suggested that by using the management tools, the project managers would be able to plan and execute their construction projects to maximize the project’s chances of success. Then, the variables in project management include adequate communication, control mechanisms, feedback capabilities, troubleshooting, coordination effectiveness, decision making effectiveness, monitoring, project organization structure, plan and schedule followed, and related previous management experience (Chua et al. 1999; Walker and Vines 2000). A number of attributes will affect this factor, including the communication system, control mechanism, feedback capabilities, planning effort, organization structure, safety and quality assurance program, control of subcontractors’ works, and finally the overall managerial actions.

Dierkmann and Girard (1995) identified the factors leading to contract disputes. This project identified the effect of different project characteristics, which included people, process and project aspects, on the occurrence of contract disputes. The findings of this work was based on logic regression analysis of data on the frequency and severity of disputes on 159 construction projects. The results concluded that all three issues played a role in influencing the likelihood of contract disputes, but the ‘people’ issue held the key to avoiding contract disputes.

Evaluation related to the construction parties and studying their influence on the project success is also another favourite topic. Kometa et al. (1995) researched on the pre-contract client evaluation process. They found that clients who conducted an internal audit of their organizations before embarking on the briefing process, would generally have a higher level of success. Hatush and Skitmore (1997) researched into the pre-qualification for contractors. The
aim of their research was to investigate the perceived relationship between 20 contractor selection criteria (CSC) currently in use and project success factors (PSFs) in terms of time, cost and quality involving a sample of eight experienced construction personnel.

A number of researchers identified the importance of procurement factors (Kumaraswamy and Chan 1999; Walker and Vines 2000). Dissanayaka and Kumaraswamy (1999) defined the scope of procurement as the framework within which construction is brought about, acquired or obtained. Therefore, two attributes are used to measure this factor; they are procurement method (selection of the organization for the design and construction of the project) and tendering method (procedures adopted for the selection of the project team and in particular the main contractor).

There has also been research which has identified the success factors that influence the performance of certain procurement strategies. Tiong et al. (1992) did the first research in this area. They identified the critical success factors in winning build operate-transfer (BOT) contracts. Cheng et al. (2000) identified the critical success factors for Project Finance Initiative (PFI) contracts and partnering projects respectively.

Construction materials can be purchased by two procedures, either purchasing directly, or purchasing for entire lump sum contract. However, purchasing materials before due time is very important in the construction, because the delay in purchasing will delay the completion date, and interrupt the schedule. Consequently, the contractor will be exposed to penalty which might sometimes cause contractor to fail (Phua and Rowlinson, 2004).

A change of procurement procedures is, however, impeded by clients’ habitual behaviour (Laedre et al., 2006). Although procurement procedures need to be tailored to enhance the fulfillment of different project objectives, clients tend to choose those procurement procedures they have a habit of using, regardless of any differences between projects. In order to enhance change, an increased understanding of how different procurement procedures affect different aspects of project performance is vital. Earlier research efforts in this area have been limited to the investigation of how a single or a few specific procurement alternatives affect one or two project objectives. In order to achieve successful governance of construction projects a holistic and systemic approach to procurement procedures is crucial (Eriksson, 2008).
2.4 Project Management Factors and Completion of Building Projects

Project management is the integral of the entire construction project functions which include coordination of subcontractors, scheduling, cost control, labor relation, billing, purchasing, expending, and other functions related to the project. In Construction Company, project manager is in charge of these functions. The use of project management techniques is very important in the construction industry, because the coordination and use of the many types of labor, skills, materials, and equipments which are used in construction require daily application of proper project management techniques (Phua and Rowlinson, 2004).

The managerial system is primarily concerned with decision making for planning and controlling organizational endeavour. The managerial subsystem can be seen as spanning the entire organisation by relating the organisation to the environment, setting the goals, developing comprehensive strategic, and operational plans, designing the structure and establishing control processes (Kast and Rosenzweig, 1985). An integral element of the managerial task is organizational decision making – choosing an overall strategy, setting specific objectives, designing structures and processes, selecting people, delegating responsibility, evaluating results and initiating changes.

Sidwell (1982) advocated that the degree of project management actions can be reflected in the range and type of control mechanisms set up for the particular problem. At one end of the range will be a very low control situation, where neither professional design team, drawings, specifications, documentation nor standard form of contract exist. Minor works may fall into this category. On the other hand a high control situation may exist if detailed documentation is administered through a system of regular meeting, monitoring and inspections.

Sidwell (1982) concluded that managerial control (classed as project management actions) is a key element in achieving project success, being significantly related to all measures of success. Ireland (1983) found similar results for managerial action. Rowlinson (1988) concluded that high level of administrative ability in the project team leads to reduced time overruns, which in turn leads to increased satisfaction.
Increased complexity, uncertainty, and time pressure in construction projects have increased the need for cooperation among different project actors (Anvuur and Kumaraswamy, 2007). Traditionally, relationships are, however, very competitive and adversarial in the construction industry, which to a large extent is due to the customary procurement procedures potentially causing many problems in all stages of the buying process. Therefore, in order to take advantage of collaboration, procurement procedures are one key improvement area and can contribute substantially to project success (Eriksson, 2007).

Intensive communication is a central factor in leading and integrating people and taking decisions to create a successful project (Laufer et al., 1996). Thus, there is need to establish an effective information system for construction projects so that every right and concerned person can access and share ideas. More broadly speaking, “shared project vision” is impossible when there is poor communication among project stakeholders. As people become better informed and more aware of what is happening in their project, they will become more involved and committed to project’s progress, and as a consequence, become better motivated (Clarke, 1999). Regardless of research scope and context, cooperation is consistently ascribed to be a vital determinant of construction project success (Phua and Rowlinson, 2004).

Frequent progress meetings are, therefore, inevitable. “What is going on” is communicated to the parties. Then, corrective and preventive actions are timely applied to ensure good project performance. Proper project monitoring and control system is impossible without effective progress meetings. A project has a chance to be completed successfully when the project plans are updated regularly. Moreover, in order to ensure project success, the plans need to be kept simple, with the right level of detail that can encourage a project to be reviewed readily (Clarke, 1999).

Community involvement is another factor in the communication component. It has been found to be an important factor in previous studies (Awakul and Ogunlana, 2002). Large-scale construction projects are usually fraught with controversy. Therefore, a supportive and understanding community is necessary for smooth implementation. This cannot be achieved unless the project information is shared adequately. Yeo (1995) noted that a large infrastructure project needs support and understanding from the community affected by the project, especially
during the construction period. He added that managing public reactions and opinions and understanding public attitudes are an integral part of the project management’s responsibility. It is then essential that the project participants should truthfully share the project information and obtain different public perspectives regarding their project.

2.5 Human-Related Factors and Completion of Building Projects

Chua et al. (1999) defined project participants as the key players, including project manager, client, contractor, consultants, subcontractor, supplier, and manufacturers. Walker (1995) considered influence of client and client’s representative as a significant factor on construction time performance. The client-related factors concerned with client characteristics, client type and experience, knowledge of construction project organization, project financing, client confidence in the construction team, owner’s construction sophistication, well-defined scope, owner’s risk aversion, client project management (Dissanayaka and Kumaraswamy 1999).

Designers play a vital role as their work involves from inception to completion on a project. Chan and Kumaraswamy (1997) considered that design team-related factors consist of design team experience, project design complexity, and mistakes/delays in producing design documents. The main contractor and subcontractors start their main duties when the project reaches the construction stage. The variables include contractor experience, site management, supervision and involvement of subcontracting, contractor’s cash flow, effectiveness of cost control system, and speed of information flow (Dissanayaka and Kumaraswamy 1999).

The project manager is another key stakeholder in a construction project and his competence is a critical factor affecting project planning, scheduling, and communication (Belassi and Tukel 1996). Variables under this factor consist of the skills and characteristics of project managers, their commitment, competence, experience, and authority (Chua et al. 1999). A construction project requires team spirit, therefore team building is important among different parties. Team effort by all parties to a contract—owner, architect, construction manager, contractor, and subcontractors—is a crucial ingredient for the successful completion of a project (Hassan 1995).

Competence is another prerequisite for the success of construction projects. The component includes utilization of up-to-date technology, proper emphasis on past experience,
multidisciplinary/competent project team, and awarding bids to the right designer/contractor. Large construction projects need certain kinds of technology, but selecting the right technology may be problematic, especially when the project team is incompetent. Technology transfer has often been the focus of discussions, yet developing countries still use obsolete technology (Eriksson, 2008). Possession of modern technology is a critical factor for success and sustenance in today’s business environment.

A serious challenge to construction industries in developing countries is their inability to adopt or adapt established best practices already working in other countries (Ngowi, 2002). Additionally, although public-sector clients in developing countries and some donor agencies support construction technology transfer, it faces several problems. It is therefore, obvious that the right technology needs the right people to select, manage and utilize it.

Proper emphasis on past experience and multidisciplinary/competent project team are success factors proposed in many textbooks and research works (Loo, 2002). Project teams themselves, not project managers, deliver projects and shape the implementation of the project. A team consisting of all necessary specialists, professionals and experts is able to make integrative decisions based on seeing the picture as a whole, and executes them later on with greater pace. Proper project planning and control require project teams to utilize appropriate project management techniques and tools.

On large construction projects in developing countries, it is extremely difficult to assemble adequate and capable professionals to direct projects to success. Thus, it is not surprising that these factors are perceived as having high impact on project success. The involvement of many parties is a dominant characteristic of construction projects (Eriksson, 2008). If one of the parties is not capable to act within his/her role, the project is likely to fail. It is, therefore, essential to ensure that the bidding process can help single out the right designers, contractors and other parties to effectively transform project ideas into reality.

A recent study (Long, 2003) conducted in Vietnam found that problems responsible by designers/consultants and contractors had very high frequency and influence on large construction projects. It can be concluded that these participants play vital roles in running projects and directing them to success or failure. Commitment to project and top management
support are the other issues related to the commitment component grouping. It has been recognized as one of the most critical factors for the successful completion of projects in numerous studies (White and Fortune, 2002; Sanchez and Perez, 2002).

The responsibility of top management toward the project is important and its commitment and support is a crucial requirement for project success (Munns and Bjeirmi, 1996). It is noted that top management should be understood to mean top management of all concerned project parties. Top management support demonstrates visibly how strong the commitment to the project is. For example, project members usually do not see project management as something to help them but rather something which is mandatory, serving little useful purpose. As such, motivation is prerequisite to ensure comfortable working environment within and around project sites. This does not axiomatically exist without commitment from the top management of all project parties.

2.6 Empirical Review

Several researches on factors affecting construction project completion have proposed either general factors (Sanvido et al., 1992) or specific factors (Chua et al., 1999). In building construction, Sanvido et al. (1992) found four CSFs: (1) a well-organized and cohesive facility team; (2) a series of contracts allowing to encourage the various specialists to behave as a team without conflicts and to allocate risk and reward correctly; (3) experience in various aspects of similar facilities; and timely, valuable optimization information from related parties in the planning and design phases.

In construction projects, Ashley (1986 cited in de Wit, 1988) identified seven success factors and six success criteria. These success factors are planning effort (construction), planning effort (design), project manager goal commitment, project team motivation, project manager technical capabilities, scope and work definition and control systems.

Ogunlana (2009) studied in critical success factors in large scale construction projects in Thailand. Their study emphasized that success factors vary across various projects. Their findings revealed project planning and control, project personnel and involvement of client as critical factors influencing project success. Ann et al. (2006) in their study, investigated on CSFs in construction project briefing. Briefing process is prerequisite to achieving success in project
performance. This process involves the interpretation of clients’ actual views and requirements to project participants. Their study considered open and effective communication, clear and precise briefing documents, clear intention and objectives of client and clear project goal and objectives as critical success factors. Ugwu et al. (2007) identified nine top critical success factors that would act as enablers for successful implementation of ICT projects in construction as cost of development, top management support, availability of appropriate tools, development team knowledge and understanding of construction processes, ease applications, clear definition and understanding end user, clear communication, standardization issues and change management of organization level.

Marterella (2007) reviewed over 50 business processes and disclosed eight critical sales success factors influencing business performance as selection, performance management, skills assessment, defined solution offerings, demand creation, qualifying, proposal clarity and existing client expansion.

Jaselkis and Ashley (1988) identified the determinant factors in order to achieve budget, schedule and outstanding project performance. They identified 27 factors and grouped the success factors into four headings, which included project manager’s capabilities, experience and authority, the stability of project team, project planning and control effort. After analyzing the information from 78 projects by logistic regression, they identified ‘reducing team turnover’ and ‘program constructability’, as the two key factors required for achieving project success on construction works.

Jaselkis and Ashley (1991) investigated the impact of the project team, planning and control efforts as they relate to achieving ‘overall’ project success, better-than expected schedule performance and better-than-expected budget performance. As in previous research, this research also used the discrete choice model as the analysis method. The results demonstrated that the key success factors affected the project outcomes differently. For example, ‘increasing the number of budget updates’ has better schedule and overall project performance. ‘Implementation of a constructability program’ seems to have a significant impact on achieving overall project success and better schedule performance – especially on fixed-price contracts. ‘Reducing team turnover’
has more significant impact on improving budget performance than it does in achieving better schedule or overall project performance.

Chua et al. (1997) used another method to analyze the data derived from Jaselskis and Ashley (1988)’s research. They used neural networks as the analyzing method focusing on budget performance only. The final model identified eight factors which were most important for budget performance. These eight factors included (1) number of organizational levels from the project manager to the craft workers, (2) amount of detailed design completed at the start of construction, (3) number of control meetings during the construction phase, (4) number of budget updates, (5) implementation of a constructability programs, (6) team turnover, (7) amount of money expended on controlling the project and (8) the project manager’s technical experience.

Kog et al. (1999) replicated Chua et al. (1997)’s research, but they aimed at identifying the key determinants for construction schedule performance. Like Chua et al., (1997)’s research, they also used the data derived by Jaselskis and Ashley in 1988. The key determinants included (1) time devoted by the project manager to a specific project, (2) frequency of meetings between the project manager and other project personnel, (3) monetary incentives provided to the designer, (4) implementation of constructability program and (5) project manager’s experience on projects with a similar scope.

Chan and Kumaraswamy (1997) have determined and evaluated the factors causing delays for construction projects in Hong Kong. They have identified 83 hypothesized delay factors and grouped them into eight categories. The main reasons for delay were analyzed and ranked according to different groups classified on the basis of (a) role of the parties in the local construction industry (i.e. whether clients, consultants and contractors) and (b) the type of projects. They collected data from 167 local construction organizations and analyzed it by using the relative impact index method in order to rank the determinant delay factors for different types of construction projects. The results indicate that the five principal and common causes of delays are: poor site management and supervision, unforeseen ground conditions, low speed of decision making involving all the project team, client initiated variations and necessary variations of works.
Distinguishing the characteristics of the success factors and the issues which influence the success factors for construction project have also been popular topic. Kothari (1986) and Chan (1992) identified the characteristics of the project manager in construction management. Kothari (1986) identified the characteristics of a successful project manager as: leadership, technical knowledge and experience, communication, planning and organisation, motivation and personality. Chan (1992) identified the additional characteristic of co-ordinating and controlling.

In Africa, Enshassi et al (2006) studied causes of contractor's business failure in developing countries. These were grouped together to only five main groups which are: managerial, financial, business growth, business environment and political factors. Managerial factors are mainly related to experience, decisions, procurement, control, productivity, communication and claims factors; financial factors are mainly related to loans, cash flow, profit, expenditures, material wastages, equipment cost and usage, and variation order; business growth factors are mainly related to managerial development, size of projects, type of work and number of projects; business environment factors are mainly related to regulations, awarding, economy, owner involvement and accounting practices and political factors are mainly related to delay, closure, lack of resource, high cost of materials, banks policy and dealing with suppliers. The results showed that political group is the most important influencing factor on contractor's business failure in Palestine. Otherwise, Business growth and Business environment had been ranked as the lowest influencing factors on failure.

Previous studies from Nigeria have revealed that soft factors have been applied in project delivery in Nigeria but poor project performance has also been recorded. This has resulted to low productivity growth which runs across all industrial sectors including Nigerian Construction Industry (Adenikinju and Ayonrinde, 2001). Malladi (2007) stipulated that enhancement of project performance will bridge productivity gaps.

Adenikinju (2005) graded productivity performance in Nigeria to be below average. His findings revealed technical inefficiency as a major influence to the decline. The result showed that technical efficiency declined by -1.29 percent per annum for the period of 1962-2000 while technical change declined by −1.01 percent annually over the same period.
Iyer and Tha (2006) found out through a survey in India that two most critical success factors are commitment of participants’ and owners’ competence. Executive support, user involvement, experienced project manager, clear business objectives, minimized scope, standard software infrastructure, firm basic requirements, formal methodology and reliable estimates were found out as the nine top success factors influencing project performance (Gartner group, 2004).

In Gaza strip, there are many construction projects fail in performance. There are many constructed projects fail in time performance, others fail in cost performance and others fail in other performance indicators. In 2006 there were many projects which finished with poor performance because of many evidential reasons such as: obstacles by client, non-availability of materials, roads closure, amendment of the design and drawing, additional works, waiting the decision, handing over, variation order, amendments in Bill of Quantity and delay of receiving drawings (UNRWA, 2006and2007).

Amaka (2011) studied the critical success factors influencing construction project performance in Nigeria. The research survey demonstrated the operating environment has a vital role in determining the critical success factors influencing project performance of a project. The result revealed six critical success factors which can influence project performance in Nigeria. These factors were objective management, management of design, technical factors, top management support and risk management.

Various attempts have been made by different researchers to determine critical success factors in construction (Beale and Freeman, 1991; Pinto and Slevin, 1987). The literature abounds with lists of variables supposedly influencing the quality of a building project. There are some variables common to more than one list, but there is certainly no general agreement on the variables. Review of this previous research reveals some common threads of variables as affecting the quality of a building project. The generally perceived factors that influence quality performance can be grouped under the headings of business related factors, project procedures, project management actions and human-related factors.
2.7 Theoretical Review

A theory is a set of assumptions, propositions, or accepted facts that attempts to provide a plausible or rational explanation of cause-and-effect (causal) relationships among a group of observed phenomenon. A theoretical framework on the other hand is a group of related ideas that provides guidance to a research project or business endeavor. In this section, the focus is on various theories under which the study is underpinned. It specifically focus on system theory, co-evolutionary theory and classical theory.

2.7.1 System Theory

The term system theory originates from Bertallanfy’s (1993) general system theory. Margaret Mead was an influential figure in systems theory. Organizations are social systems. Real systems are open to and interact with their environments. The different parts/elements within and around the organization intermingle to affect the way organization operate and therefore strategy implementation.

It can be argued from a system’s approach to strategic management that many of the reasons for strategies failure may be attributed to the “successive dominance of different reductionism approaches to strategic management (Gregory, 2011). Such partial approaches to project management ignore the complex, embedded and dynamic nature of today’s organization.

Taking the system approach in project implementation helps managers of organizations to have to understand the customer, better predict environmental reaction, estimate resource competence, and coordinate strategic project activities, obtain management commitment, estimate time requirements, ability to follow the plan, manage the strategic change and ensure effective communication.

2.7.2 Co-evolutionary Theory

Co-evolutionary theory, according to Lewin and Volberda (1999), indicates that as firms grow and evolve from small to larger and multidivisional organizations, the strategy implementation methods also evolve simultaneously. The various project implementation models are meant to meet the changing needs of firms as they evolve through various stages of the organizational life
cycle (Parsa, 1999). In contrast to the earlier descriptive models, this model is more prescriptive with an, albeit limited, empirical basis. The research highlights three of Bourgeois and Brodwin's (1984) classifications of project implementation styles: change, collaborative, and cultural.

Not all firms implement their projects in the same manner; nevertheless, research investigating the differing styles of implementation is scarce. Nutt (2008) utilizes Jungian theory (Jung, 1923) for his framework of implementation style, however, this is very much an analysis of the psychological style of individuals within the firm. More recently, Parsa (1999) utilized Bourgeois and Brodwin's (1984) classification of strategy implementation types.

The majority of existing classification models in project implementation tend to be normative in nature. Alternatively, they are developed from organizational observation, and as such, become context specific and frequently lack any broader theoretical grounding. In contrast, Bourgeois and Brodwin's (1984) model is comprehensive and based on specific theoretical assumptions and has been used by authors such as Parsa (1999). Bourgeois and Brodwin (1984) to refute the traditional approach to project implementation as simply an addition to the strategy formulation phase of the strategy process. Rather, they contend that project implementation evolves either from a process of winning group commitment through a coalitional form of decision-making, or as a result of complete coalitional involvement of implementation staff through a strong corporate culture.

2.7.3 Classical Theory

According to this theory by Chandler (1962), two main approaches to strategy have emerged over time: the Design School and the Process School. Under the Design School of thought strategy formulation is a formal process that is de-linked from strategy implementation. Strategy is carefully crafted by senior management and then implementation begins, with the aim of maximizing profits of the organisation. Chandler (1962) a major proponent of the design school, defines strategy as ‘the determination of basic, long term goals of the enterprise, and the adoption of courses of action and allocation of resources necessary for those goals. This definition clearly shows strategy formulation as separate from strategy implementation.
The design school is consistent with the classical theory, which, according to Whittington (2008), sees strategy formulation as formulation of plans of attack by the general, and these preconceived plans are executed according to commands transmitted through obedient hierarchies to officers and their men at the front. This approach to strategy places great confidence in the readiness and capacity of managers to adopt profit maximization strategies through long term planning. It views strategy as an economic rational process and primarily restricted to issues related to market share and profitability.

The process school lays less confidence in the ability of top management to plan and act rationally. It advocates that whatever methods managers adopt, it will only be the best performers that survive. According to Handerson (1989), competition is not a matter of detached calculation, but a constant struggle for survival. According to Mintzberg (1987), crafting strategy is a continuous and adaptive process, with formation and implementation inextricably entangled. Thus, process school advocates are inclined towards incremental adjustment of strategy and cultivating of core competences. The process school views strategy as an outcome of a process where the emphasis is not on construction of detailed plans but on organizational and social aspects of strategy formations. Capabilities of an organization in terms of structure, system, technology, and management styles restrict the range of options an organization can pursue.

2.8 Conceptual Framework

The various variables affecting the factors are identified in the previous section. Variables within each group are interrelated. A variable in one group can influence a variable in the others, and vice versa. To study how these factors affect project completion separately and collectively, it is hypothesized that ‘‘Project completion is a function of Business-related factors, project procedures, project management actions and human-related factors and they are interrelated.”
For a project to be complete, business related factors such as money, resources, leadership efforts and leadership should always be available throughout the project’s life. In addition, project procedures comprising of procurement, method of tendering, selection of the most appropriate organization for the design and construction of the project requires early and particular attention. Also important are various project management actions which include coordination of subcontractors, scheduling, cost control, labor relation, billing, purchasing, expending, and other functions related to the project should be streamlined to ensure the project stick to the plan. Finally, human-related factors which touch on the project participants including project manager, client, contractor, consultants, subcontractor, supplier, and manufacturers are also important in project success.

2.9 Summary

This chapter reviews the relevant literature in relation to the research questions presented in the study. The chapter demonstrated that a construction project is completed as a result of a combination of many events and interactions, planned or unplanned, over the life of a facility, with changing participants and processes in a constantly changing environment.
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction
This chapter gives various stages that were followed in the study. This chapter covers research design, target population, data collection instruments, data collection procedures and finally data analysis.

3.2 Research Design

Cooper and Schindler (2003) summarizes the essentials of research design as an activity and time based plan; always based on the research question; guides the selection of sources and types of information; a framework for specifying the relationship among the study variables and outlines the procedures for every research activity. The design of this research was a descriptive survey research. This design refers to a set of methods and procedures that describe variables. It involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data. Descriptive studies portray the variables by answering who, what, and how questions (Babbie, 2002). The method is chosen since it is more precise and accurate since it involves description of events in a carefully planned way (Babbie, 2004). This research design also portrays the characteristics of a population fully (Chandran, 2004). This design is appropriate since the study seeks to describe the key factors in a road construction project, estimate their keyness based on the responses from the project management team and make predictions. The design is also able to produce statistical information about aspects of the subject that interest policy makers and researchers.

3.3 Target Population

Mugenda and Mugenda (2003) described population as, the entire group of individuals or items under consideration in any field of inquiry and have a common attribute. The population for this study comprised of 136 managers from the Ministry of Land, Housing and Urban Development.
<table>
<thead>
<tr>
<th>Target Population</th>
<th>Population</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior managers</td>
<td>14</td>
<td>10.3</td>
</tr>
<tr>
<td>Middle level managers</td>
<td>49</td>
<td>36.0</td>
</tr>
<tr>
<td>Low level managers</td>
<td>73</td>
<td>53.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>136</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Source, (Author, 2015)

### 3.4 Sampling Design and Sample Size

Ngechu (2004) underscores the importance of selecting a representative sample through making a sampling frame. From the population frame the required number of subjects, respondents, elements or firms were selected in order to make a sample. Simple random sampling technique was used to select the sample. According to Cooper and Schindler (2003), simple random sampling frequently minimizes the sampling error in the population. This in turn increases the precision of any estimation methods used. According to Mugenda (1999), from normal distribution the population proportion can be estimated to be

\[
    n = \frac{Z^2 P Q}{\alpha^2}
\]

Where:
- \(Z\) is the \(Z\) – value = 1.96
- \(P\) Population proportion 0.50
- \(Q = 1-P\)
- \(\alpha = level of significance = 5\%

\[
    n=\frac{1.96^2 \times 0.5 \times 0.5}{0.5^2}
\]

\[
    n= 384
\]

Adjusted sample size

\[
n.'= \frac{384}{[1+ (384/136)]}
\]
Approx. = 100 respondents

Table 3.2: Sampling Frame

<table>
<thead>
<tr>
<th></th>
<th>Population</th>
<th>Ratio</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior managers</td>
<td>14</td>
<td>0.74</td>
<td>10</td>
</tr>
<tr>
<td>Middle level managers</td>
<td>49</td>
<td>0.74</td>
<td>36</td>
</tr>
<tr>
<td>Low level managers</td>
<td>73</td>
<td>0.74</td>
<td>54</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>136</strong></td>
<td></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source, (Author, 2015)

3.5 Research Instruments

The study used a semi-structured self-administered questionnaire to collect data from the managers in the Ministry of Land, Housing and Urban Development. Mugenda and Mugenda (2003) observed that, the pre-requisite to questionnaire design is definition of the problem and the specific study objectives. Questionnaires items were closed ended or open ended type. As regards to the former, the questions only allowed specific types of responses while with respect to the open ended type, the respondents stated responses as they wished. Kothari (2004) observed that questionnaires are very economical in terms of time, energy and finances. Similarly, it yields, quantitative data which are easy to collect and analyze. The study also used interview guide to obtain answers from representatives in the ministry of land and planning.

3.6 Validity of Instruments

Validity is the degree to which results obtained from the analysis of the data actually represents the phenomenon under study. Validity was ensured by having objective questions included in the questionnaire and by pre-testing the instrument used to identify and change any ambiguous, awkward, or offensive questions and technique as emphasized by Cooper and Schindler (2003). Expert opinion was requested to comment on the representativeness and suitability of questions and give suggestions of corrections to be made to the structure of the research tools. This helped to improve the content validity of the data that was collected.
3.7 Reliability of Instruments

Reliability on the other hand refers to a measure of the degree to which research instruments yield consistent results (Mugenda & Mugenda, 2003). The pre-testing aimed at determining the reliability of the research tools including the wording, structure and sequence of the questions. The research instruments were subjected to overall reliability analysis using the split half method. This was done by collecting data from a given number of respondents into two halves (often odd-even). The two halves are correlated using Pearson's correlation. A coefficient of 0.7 or more implies that there is a high degree of data reliability (Trochim, 2005). The purpose was to refine the research tools so that respondents in the major study would have no problem in answering the questions and examining whether the same response was obtained. The research questionnaire was reliable as the variables had an average coefficient of 0.8327.

3.8 Data Collection Procedure

Data collection is a very crucial and time involving activity. In this connection, due to the busy schedule of the researcher, the questionnaires were delivered to the respondents and were collected by research assistant. A method of hand delivery and collection on the same day was tried but where it was not be possible, the method of hand delivery and collection on the following day was used. Face to face interviewing was adopted to obtain answers from representatives in the Ministry of Land, Housing and Urban Development. According to Mugenda (1999), a guided interview can be used to interview the respondents.

3.9 Data Analysis

The collected data was analyzed using both quantitative and qualitative data analysis methods. Quantitative method involved descriptive analysis. Descriptive analysis such as frequencies, percentages were used to present quantitative data in form of tables. Data from questionnaire was coded and logged in the computer using Statistical Package for Social Science (SPSS V 21.0). This involved coding both open and closed ended items in order to run simple descriptive analyses to get reports on data status. Descriptive statistics involved the use of absolute and relative (percentages) frequencies, measures of central tendency and dispersion (mean and standard deviation respectively). Frequency tables were used to present the data for easy
comparison. Content analysis was used for the qualitative data and then presented in prose. The study also conducted a Pearson’s correlation analysis to establish the relationship between the variables.

3.10 Ethical Considerations

According to Kerridge, Lowe and McPhee (2005), ethics involves making a judgment about right and wrong behavior. Ethics as noted by Minja (2009) is referred to, as norms governing human conduct which have a significant impact on human welfare. Indeed as observed by Devettere (2000), ethics is about choice between good and bad. In this study, confidentiality was of concern as the information relevant to the study was of strategic importance. In this regard, the names of the respondents were not disclosed. In addition, where a response was attributed to specific individuals the said information was maintained in strict confidence. Voluntary participation: all that participated were not coerced into participating in the research as the researcher wrote notifications in advance for any of the participant’s thus promoting informed consent for all involved. The researcher ensured that guarantees to the participants concerning confidentiality are given and strictly observed. Information was not made available to anyone who was not directly involved in the study. The strict standard of anonymity were employed which means that the participant remained anonymous throughout the study even to the researchers themselves. Other ethical issues put in check include; Honesty: The researcher strived to maintain truthfulness in reporting data results by ensuring that there is no fabrication, falsehood, or any misrepresentation of data. Objectivity: The researcher avoided bias in experimental design, data analysis, data interpretation, peer review, and expert testimony among others. Carefulness: The researcher ensured that careless errors and negligence are avoided as good records of research were kept such as data collection and research design. Respect for Intellectual Property: The researcher honored patents, copyrights, and other forms of intellectual property by accrediting and acknowledging of contributions from various parties. Non-Discrimination: The researcher avoided discrimination against respondents on the basis of sex, race, ethnicity, or other factors that are not related to their competence and integrity.
3.9 Operationalization of Variables

The Operationalization of variables is shown in Table 3.2.

Table 3.1: Operationalization of Variables

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Type of Variable</th>
<th>Indicator</th>
<th>Measuring of Indicators</th>
<th>Scale</th>
<th>Tools of analysis</th>
<th>Type of analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>To identify business-related factors that influence completion of building</td>
<td>Independent</td>
<td>Business-related</td>
<td>Adequacy of funding Technology availability Human Skill availability X-Factor (fraudulent practices, corruption, favoritism, lack of ethics, etc.) Commitment of all parties to the project</td>
<td>Nominal ordinal</td>
<td>Frequency distribution tables and percentages</td>
<td>Descriptive Content analysis Pearson’s correlation</td>
</tr>
<tr>
<td>projects in Kenya.</td>
<td></td>
<td>factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To establish the project procedures that influence completion of building</td>
<td>Independent</td>
<td>Project procedures</td>
<td>Project delivery system Project bidding method Project contract mechanism Control mechanism Feedback capabilities Troubleshooting Quality assurance program Safety program</td>
<td>Nominal ordinal</td>
<td>Frequency distribution tables and percentages</td>
<td>Descriptive Pearson’s correlation</td>
</tr>
<tr>
<td>projects in Kenya.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To establish the project management actions that influence completion of</td>
<td>Independent</td>
<td>Project management</td>
<td>Communication systems Upfront planning efforts Monitoring and updating plans Developing an</td>
<td>Nominal ordinal</td>
<td>Frequency distribution tables and percentages</td>
<td>Descriptive Content analysis Pearson’s correlation</td>
</tr>
<tr>
<td>building</td>
<td></td>
<td>factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
To identify human-related factors that influence completion of building projects in Kenya.

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Human-related factors</th>
<th>Client-related factors</th>
<th>Nominal/ordinal</th>
<th>Frequency distribution tables and percentages</th>
<th>Descriptive/Pearson’s correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>To identify human-related factors that influence completion of building projects in Kenya.</td>
<td>Independent</td>
<td>Human-related factors</td>
<td>Client-related Design team-related Contractor-related Project Manager-related</td>
<td>Nominal/ordinal</td>
<td>Frequency distribution tables and percentages</td>
</tr>
<tr>
<td>Dependent variable</td>
<td>Dependent</td>
<td>Project completion</td>
<td>Cost Time Quality Client Satisfaction</td>
<td>Nominal/ordinal</td>
<td>Frequency distribution tables and percentages</td>
</tr>
</tbody>
</table>
CHAPTER FOUR
DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction
This chapter discusses the interpretation and presentation of the findings. This chapter presents analysis of the data on the factors influencing the completion of building projects. The chapter also provides the major findings and results of the study.

4.1.1 Response Rate
The study targeted a sample size of 100 respondents from which 77 filled in and returned the questionnaires making a response rate of 77%. This response rate was good and representative and conforms to Mugenda (1999) stipulation that a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent.

4.2 Demographic Characteristics
The study sought to establish the background information of the respondents and the companies including respondents’ gender, age and highest level of education.

4.2.1 Gender
The study sought to assess the gender of the respondents. The information collected is as shown in the figure below. The findings show that the majority of the respondents were male (77%) while the rest (33%) were female.

Table 4.1: Gender of respondents

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>59</td>
<td>77</td>
</tr>
<tr>
<td>Female</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td>77</td>
<td>100</td>
</tr>
</tbody>
</table>

4.2.2 Age
The study also assessed the age of the respondents. Results are as shown in the table below
Table 4.2: Age of respondents

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-25 Years</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>26-35 Years</td>
<td>31</td>
<td>40</td>
</tr>
<tr>
<td>36-45 Years</td>
<td>27</td>
<td>35</td>
</tr>
<tr>
<td>46 Years And Above</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>77</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The findings reveal that a majority of the respondents are 26-35 Years (40%) followed by 36-45 years (35%). Additionally, 13% of the respondents were 46 Years And Above followed closely by 18-25 Years who were 12%.

4.2.3 Level of Education

The study also sought to establish the respondents’ highest level of education.

Table 4.1: Respondents’ highest level of education

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate</td>
<td>9</td>
<td>11.9</td>
</tr>
<tr>
<td>Diploma</td>
<td>13</td>
<td>16.4</td>
</tr>
<tr>
<td>Undergraduate degree</td>
<td>41</td>
<td>53.7</td>
</tr>
<tr>
<td>Postgraduate degree</td>
<td>14</td>
<td>17.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>77</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

According to the findings, the majority of the respondents (53.7%) had an undergraduate degree, 17.9% had a postgraduate degree, 16.4% had a diploma while 11.9% of the respondents had a certificate.
4.4 Business Related Factors

The study was interested in investigating the influence of various business related factors on the completion of building projects in the Ministry of Land, Housing and Urban Development.

Table 4.3: Rating of Business Related Factors

<table>
<thead>
<tr>
<th>Business Related Factors</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commitment of all parties to the project</td>
<td>2.6286</td>
<td>0.54298</td>
</tr>
<tr>
<td>Adequacy of funding</td>
<td>3.3800</td>
<td>1.218</td>
</tr>
<tr>
<td>Technology availability</td>
<td>4.1000</td>
<td>1.083</td>
</tr>
<tr>
<td>Human Skill availability</td>
<td>4.1500</td>
<td>0.992</td>
</tr>
<tr>
<td>X-Factor (fraudulent practices, corruption, favoritism, lack of ethics, etc.)</td>
<td>2.7100</td>
<td>1.045</td>
</tr>
<tr>
<td>Economic environment</td>
<td>3.7142</td>
<td>0.52297</td>
</tr>
<tr>
<td>Social environment</td>
<td>3.8142</td>
<td>0.43191</td>
</tr>
<tr>
<td>Political environment</td>
<td>4.1714</td>
<td>0.37078</td>
</tr>
<tr>
<td>Physical work environment</td>
<td>3.3428</td>
<td>0.83703</td>
</tr>
<tr>
<td>Industrial relations environment</td>
<td>4.1604</td>
<td>0.76274</td>
</tr>
<tr>
<td>Administrative approvals environment</td>
<td>2.1714</td>
<td>0.56393</td>
</tr>
</tbody>
</table>

According to the results in Table 4.2, majority of the respondents rated human skill availability as being much significant to a great extent as shown by a mean score of 4.1500, as well as technology availability shown by a mean score of 4.1000, political environment shown by a mean score of 4.1714, industrial relations environment as shown by a mean score of 4.1604, economic environment as shown by a mean score of 3.7142 and social environment as shown by a mean score of 3.8142. They further rated the adequacy of funding to be significant to a
moderate extent as shown by a mean score of 3.3800, physical work environment was also rated
to be moderately significant as shown by a mean score of 3.3428 and X-Factor (fraudulent
practices, corruption, favoritism and lack of ethics, among others) to be moderately significant as
shown by a mean score of 2.7100 as well as commitment of all parties to the project shown by a
mean score of 2.6286, while they rated administrative approvals environment as having low
extent of significant as shown by a mean score of 2.1714.

4.5 Project Procedures Factors

The study further sought to establish the extent to which various project procedure factors
influence the success of a project within the building industry. These results are depicted in
Table 4.3.
Table 4: Rating of Project Procedures

<table>
<thead>
<tr>
<th>Project procedures</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project delivery system (design-bid-build, design build)</td>
<td>4.3750</td>
<td>1.2500</td>
</tr>
<tr>
<td>Project bidding method (price based competitive bidding,</td>
<td>4.0978</td>
<td>1.1772</td>
</tr>
<tr>
<td>negotiated bidding, best value bidding)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project contract mechanism (lump sum, unit price, cost</td>
<td>2.7679</td>
<td>0.46675</td>
</tr>
<tr>
<td>plus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control mechanism</td>
<td>4.5488</td>
<td>1.1323</td>
</tr>
<tr>
<td>Feedback capabilities</td>
<td>2.5893</td>
<td>0.62601</td>
</tr>
<tr>
<td>Troubleshooting</td>
<td>4.0000</td>
<td>0.5898</td>
</tr>
<tr>
<td>Quality assurance program</td>
<td>3.5000</td>
<td>0.6757</td>
</tr>
<tr>
<td>Safety program</td>
<td>3.1000</td>
<td>1.163</td>
</tr>
</tbody>
</table>

From the study, majority of the respondents reiterated that control mechanism is significant to a very great extent as shown by a mean score of 4.5488; project delivery system (design-bid-build and design build) was also rated to be significant to a great extent as shown by a mean score of 4.3750 as well as project bidding method (price based competitive bidding, negotiated bidding and best value bidding) shown by a mean score of 4.0978, troubleshooting shown by a mean score of 4.0000 and quality assurance program shown by a mean score of 3.5000, while they rated safety program to be moderately significant as shown by a mean score of 3.1000, project contract mechanism (lump sum, unit price and cost plus) to be moderately significant as shown by a mean score of 2.7679 and feedback capabilities to be moderately significant as shown by a mean score of 2.5893.

4.6 Project Management Factors

Project management factors also affect the completion of building projects in the Ministry of Land, Housing and Urban Development. This section therefore is dedicated to investigating the significance of various aspects of project management factors on the completion of building projects.
<table>
<thead>
<tr>
<th>Project Management Factors</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication systems</td>
<td>3.9398</td>
<td>1.3081</td>
</tr>
<tr>
<td>Upfront planning efforts</td>
<td>4.3158</td>
<td>0.9280</td>
</tr>
<tr>
<td>Monitoring and updating plans</td>
<td>4.6962</td>
<td>0.7030</td>
</tr>
<tr>
<td>Developing an appropriate structure</td>
<td>4.3008</td>
<td>1.2762</td>
</tr>
<tr>
<td>Control of subcontractor work</td>
<td>3.9098</td>
<td>1.1339</td>
</tr>
<tr>
<td>Implementing safety program</td>
<td>2.7500</td>
<td>1.2041</td>
</tr>
<tr>
<td>Implementing QA programs</td>
<td>3.3750</td>
<td>1.3524</td>
</tr>
<tr>
<td>Coordination effectiveness</td>
<td>3.5834</td>
<td>0.5882</td>
</tr>
<tr>
<td>Decision making effectiveness</td>
<td>3.1666</td>
<td>0.7755</td>
</tr>
<tr>
<td>Clear objectives and scope</td>
<td>2.9166</td>
<td>0.8836</td>
</tr>
<tr>
<td>Holding of regular meetings</td>
<td>3.3750</td>
<td>1.2500</td>
</tr>
<tr>
<td>Developing standard procedures/absence of bureaucracy</td>
<td>3.0978</td>
<td>1.1772</td>
</tr>
<tr>
<td>Prior project management experience</td>
<td>2.5000</td>
<td>0.6756</td>
</tr>
<tr>
<td>Risk identification and allocation</td>
<td>3.5488</td>
<td>1.1322</td>
</tr>
<tr>
<td>Formal dispute resolution process</td>
<td>1.6600</td>
<td>0.7012</td>
</tr>
<tr>
<td>Commitment to project</td>
<td>4.6600</td>
<td>0.8312</td>
</tr>
<tr>
<td>Top management support</td>
<td>3.5000</td>
<td>0.6756</td>
</tr>
<tr>
<td>Effective Strategic Planning</td>
<td>2.2500</td>
<td>0.6796</td>
</tr>
<tr>
<td>Adequate funding throughout the Project</td>
<td>4.5836</td>
<td>1.0742</td>
</tr>
<tr>
<td>Comprehensive Contract documentation</td>
<td>3.3750</td>
<td>1.2500</td>
</tr>
<tr>
<td>Up to date technology utilization</td>
<td>3.0978</td>
<td>1.1772</td>
</tr>
</tbody>
</table>
From the study, adequate funding throughout the project and commitment to project were rated to be significant to a very great extent as shown by mean scores of 4.5836 and 4.6600 respectively and that monitoring and updating plans is also significant to a very great extent in the success of a projects as shown by mean scores of 4.5962. Majority of the respondents rated upfront planning efforts to be significant to a great extent as shown by a mean score of 4.3158 as well as developing an appropriate structure shown by a mean score of 4.3008, communication systems shown by a mean score of 3.9398, control of subcontractor work shown by a mean score of 3.9098, coordination effectiveness shown by a mean score of 3.5834 and risk identification and allocation shown by a mean score of 3.5488.

They further indicated that implementing QA programs is moderately significant in the success of building projects as shown by a mean score of 3.3750, holding of regular meetings is highly significant in the completion of building projects as shown by a mean score of 3.3750, comprehensive contract documentation is highly significant as shown by a mean score of 3.3750, decision making effectiveness is highly significant as shown by a mean score of 3.1666, developing standard procedures/absence of bureaucracy is moderately significant as shown by a mean score of 3.0978, up to date technology utilization is highly significant as shown by a mean score of 3.0978, clear objectives and scope is moderately significant as shown by a mean score of 2.9166, implementing safety program is highly significant as shown by a mean score of 2.7500 as well as prior project management experience and top management support shown by a mean score of 2.5000 in each case. Accordingly they rated effective strategic planning to be have low extent significance as shown by a mean score of 2.2500 as well as formal dispute resolution process as shown by a mean score of 1.6600.
4.7 Human-Related Factors
In its fourth specific objective, the study sought to identify human-related factors that influence completion of building projects in the Ministry of Land, Housing and Urban Development.

4.7.1 Respondents Rating on Human-Related Factors

Table 4.6: Rating the Significance of Client-Related Factors

<table>
<thead>
<tr>
<th>Client-related Factors</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of client (Funding and organizational structure)</td>
<td>4.7642</td>
<td>0.81303</td>
</tr>
<tr>
<td>Client’s knowledge of construction project organization</td>
<td>3.3444</td>
<td>1.04207</td>
</tr>
<tr>
<td>Owner’s construction sophistication</td>
<td>4.1234</td>
<td>1.36153</td>
</tr>
<tr>
<td>Design team experience</td>
<td>3.9876</td>
<td>1.16447</td>
</tr>
<tr>
<td>Adequacy of plans and specifications</td>
<td>3.6358</td>
<td>1.09071</td>
</tr>
<tr>
<td>Contractor experience</td>
<td>3.2636</td>
<td>1.20156</td>
</tr>
<tr>
<td>Site management</td>
<td>3.4012</td>
<td>0.86551</td>
</tr>
</tbody>
</table>

According to the results in Table 4.5, nature of client (privately funded vs. publicly funded) was rated to be significant to a very great extent in determining the completion of a projects as shown by mean scores of 4.7642; owner’s construction sophistication was found to be significant to a great extent as shown by a mean score of 4.1234. Further, Design team experience is highly significant to a great extent as shown by a mean score of 3.9876 as well as adequacy of plans and specifications significant to a great extent as shown by a mean score of 3.6358. The respondents rated Site management to be moderately significant in the completion of building projects as shown by a mean score of 6.4012, while client’s knowledge of construction project organization and Contractor experience were rated to be moderately significant in the completion of building projects as shown by mean scores of 3.3444 and 3.2636 respectively.
### 4.8 Correlation Analysis

#### Table 4. 7: Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>completion of building projects</th>
<th>business related factors</th>
<th>project procedures</th>
<th>project management factors</th>
<th>human related factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>completion of building projects</td>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>business related factors</td>
<td>Pearson Correlation</td>
<td>.638</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.029</td>
<td>.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>project procedures</td>
<td>Pearson Correlation</td>
<td>.764</td>
<td>.523</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.017</td>
<td>.016</td>
<td>.</td>
<td></td>
</tr>
<tr>
<td>project management factors</td>
<td>Pearson Correlation</td>
<td>.622</td>
<td>.743</td>
<td>.597</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.031</td>
<td>.012</td>
<td>.028</td>
<td>.</td>
</tr>
<tr>
<td>human related factors</td>
<td>Pearson Correlation</td>
<td>.529</td>
<td>.533</td>
<td>.720</td>
<td>.531</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.047</td>
<td>.009</td>
<td>.002</td>
<td>.014</td>
</tr>
</tbody>
</table>

The data presented before on business related factors, project procedures, project management factors and human related factors were computed into single variables per factor by obtaining the
averages of each factor. Pearson’s correlations analysis was then conducted at 95% confidence interval and 5% confidence level 2-tailed. The table above indicates the correlation matrix between the factors (business related factors, project procedures, project management factors and human related factors) and completion of building projects. According to the table, there is a positive relationship between completion of building projects and business related factors, project procedures, project management factors and human related factors of magnitude 0.638, 0.764, 0.622 and 0.529 respectively. The positive relationship indicates that there is a correlation between the factors of completion of building projects. This infers that project procedures has the highest effect on completion of building projects, followed by business related factors, then project management factors while human related factors having the lowest effect on the completion of building projects in the ministry of land, housing and urban development.
CHAPTER FIVE
SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction
This chapter presented the discussion of key data findings, conclusion drawn from the findings highlighted and recommendation made there-to. The conclusions and recommendations drawn were focused on addressing the objective of the study.

5.2 Summary of Findings
The study sought to establish the factors influencing the completion of building projects in Kenya.

5.2.1 Business Related Factors
This study found that there is much significant relationship between business related factors and the completion of building projects in the Ministry of Land, Housing and Urban Development. Human skills availability, technology availability, political environment, industrial relations environment, economic environment and social environment are much significant in determining the completion of building projects. The study also revealed that adequacy of funding and physical work environment are very significant. X-Factor (fraudulent practices, corruption, favoritism, lack of ethics, etc.) as well as commitment of all parties to the project are rated to be moderately significant while administrative approvals environment is just significant.

5.2.2 Project Procedure Factors
The study established that there is a significant relationship between project procedure factors on the completion of projects within the construction industry. From the study it was clear that control mechanism and project delivery system (design-bid-build and design build) is highly significant as well as project bidding method (price based competitive bidding, negotiated bidding and best value bidding), troubleshooting and quality assurance program. The study also ascertained that safety program, project contract mechanism (lump sum, unit price and cost plus,) and feedback capabilities to be moderately significant in the completion of building projects.
5.2.3 Project Management Factors
The study found out that project management factors are also influential in the completion of building projects. From the study, upfront planning efforts as well as developing an appropriate structure, communication systems, control of subcontractor work, coordination effectiveness and risk identification and allocation are highly significant in the completion of building projects. Further, implementing QA programs, holding of regular meetings, comprehensive contract documentation, decision making effectiveness, developing standard procedures/absence of bureaucracy, up to date technology utilization, clear objectives and scope is highly significant, implementing safety program is highly significant and prior project management experience and top management support are highly significant in the completion of construction projects. Other factors that are quite significant include effective strategic planning and formal dispute resolution process, while adequate funding throughout the project and commitment to project are moderately significant and monitoring and updating plans is just significant in the completion of projects.

5.2.4 Human Related Factors
The study found that human related factors have an influence on the completion of building projects in the Ministry of Land, Housing and Urban Development. Nature of client (funding and organizational structure) and owner’s construction sophistication, client’s project management, client’s confidence in construction team and client’s ability to make decision are very significant in determining the completion of projects. Further, client’s experience and awarding bids to the right designer/contractor are found to be quite significant, while client’s knowledge of construction project organization and client’s ability to define roles are moderately significant in the completion of building projects. On design team-related factors, adequacy of plans and specifications and project design complexity are very significant accurate initial cost estimates to be just significant and design team experience to be moderately significant.

The study further established that contractor-related factors such as contractor’s cash flow, contractor experience and site management are very significant; Contractors’ effectiveness of cost control system is just significant, while speed of information flow is moderately significant. On project manager-related factors, project manager’s adaptability, project manager’s experience, project manager’s commitment to meet quality, cost and time, technical capability of
project manager and organizing skills of project manager are found to be significant; Construction control meetings, project manager’s competence and leadership skills of project manager are quite significant; project manager’s early and continued involvement in project, motivating skills of project manager, continuing involvement of stakeholders in the project, coordinating ability and rapport of project manager with owner/ owner representatives, project manager’s authority to take financial decision, selecting key team members, etc., and project manager’s authority to take day-to-day decisions are moderately significant, while coordinating ability and rapport of project manager with contractors/ subcontractors is just significant.

5.3 Discussion

This study focused on investigating the influential factors on the completion of the building projects. A construction project is commonly acknowledged as successful when it is completed on time, within budget, and in accordance with specifications and to stakeholders’ satisfactions. The findings of this study emphasized that completion factors vary across various projects. This section therefore focuses on a detailed discussion of the major findings of the study which also entails comparing the study findings to the literature in order to come up with comprehensive conclusion.

5.3.1 Business-Related Factors

With regard to the influence of business-related factors on the completion of building projects in the Ministry of Land, Housing and Urban Development, the study found that human skills availability, technology availability, political environment, industrial relations environment, economic environment and social environment are much significant in determining the completion of building projects. Other factors in this category include adequacy of funding and physical work environment, X-Factor (fraudulent practices, corruption, favoritism, lack of ethics, etc.), commitment of all parties to the project and administrative approvals environment. These findings agree with Walker and Vines (2000) who supported the operating environment as a factor affecting the project completion. They used various attributes to measure the influence of business environment factors which are economic environment, social environment, political environment, physical environment, industrial relation environment and level of technology advanced. On the same, White and Fortune (2002) emphasized that adequate funding through the
project, comprehensive contract documentation, availability of resources, continuing involvement of all stakeholders in the project, and competent project manager are obvious imperatives to carry out projects. Further, the critical completion factors in Sanvido et al. (1992) were a series of contracts that allows and encourages the various specialists to behave as a team without conflicts of interest and differing goals.

5.3.2 Project Procedure Factors

The study established that the project procedure factors have an influence on the completion of building projects. The project team concern themselves with attainment of quality projects which is considered as a function of the procedures adopted during the building process. Various aspects involved here are control mechanism and project delivery system (design-bid-build, and design build), project bidding method (price based competitive bidding, negotiated bidding and best value bidding), troubleshooting, quality assurance program, safety program, project contract mechanism (lump sum, unit price and cost plus,) and feedback capabilities. These findings correlate with Serpell and Alarcon (1998) that procedures comprise the concept of procurement form and the method of tendering that place great dependence on the project team in setting up the building process and bringing the project to a successful conclusion. Walker and Vines (2000) echoed the same views that the variables in project management include adequate communication; control mechanisms, feedback capabilities, troubleshooting, coordination effectiveness, decision making effectiveness, monitoring, project organization structure, plan and schedule followed, and related previous management experience. This project identified the effect of different project characteristics, which included people, process and project aspects, on the occurrence of contract disputes. In order to enhance change, an increased understanding of how different project procedures affect different aspects of project performance is vital.

5.3.3 Project Management Factors

The study revealed that the project management factors are also influential in the completion of building projects. Project management is the integral of the entire building project functions which include coordination of subcontractors, scheduling, cost control, labor relation, billing, purchasing, expending, and other functions related to the project. These projects related factors involve upfront planning efforts, developing an appropriate structure, communication systems,
control of subcontractor work, coordination effectiveness, risk identification and allocation, implementing QA programs, holding of regular meetings, comprehensive contract documentation, decision making effectiveness, developing standard procedures/absence of bureaucracy, up to date technology utilization, clear objectives and scope is highly significant, implementing safety program is highly significant and prior project management experience and top management support among others. According to Phua and Rowlinson (2004) the use of project management techniques is very important in the building industry, because the coordination and use of the many types of labor, skills, materials, and equipment which are used in building, require daily application of proper project management techniques. As such, the degree of project management factors can be reflected in the range and type of control mechanisms set up for the particular problem.

On the same note, Anvuur and Kumaraswamy (2007) concluded that managerial control (classed as project management factors) is a key element in achieving project completion, being significantly related to all measures of completion. They highlighted that increased complexity, uncertainty, and time pressure in building projects have increased the need for cooperation among different project actors. Accordingly, as people become better informed and more aware of what is happening in their project, they will become more involved and committed to project’s progress, and as a consequence, become better motivated. It is therefore clear that, regardless of research scope and context, cooperation is consistently ascribed to be a vital determinant of building project completion. The project participants should truthfully share the project information and obtain different public perspectives regarding their project.

5.3.4 Human Related Factors

From the study, human related factors have an influence on the completion of building projects. Project participants are the key players, including project manager, client, contractor, consultants, subcontractor, supplier, and manufacturers. Nature of client (funding and organizational structure) and owner’s construction sophistication, client’s project management, client’s confidence in building team and client’s ability to make decision are among the factors that influence the completion of the building projects. The client-related factors, design team-related factors, contractor-related factors and project manager-related factors are severally
mentioned to have an influence on the completion of building projects. These findings concur with those of Dissanayaka and Kumaraswamy (1999) that client characteristics, client type and experience, knowledge of building project organization, project financing, client confidence in the building team, owner’s construction sophistication, well-defined scope, owner’s risk aversion, and client project management influence the completion of building projects. Chan and Kumaraswamy (1997) considered that design team-related factors consist of design team experience, project design complexity, and mistakes/delays in producing design documents. The main contractor and subcontractors start their main duties when the project reaches the construction stage. The variables include contractor experience, site management, supervision and involvement of subcontracting, contractor’s cash flow, effectiveness of cost control system, and speed of information flow.

Belassi and Tukel (1996) pointed out that project manager is a key stakeholder in a building project and his competence is a critical factor affecting project planning, scheduling, and communication. As such a building project requires team spirit, therefore team building is important among different parties. Team effort by all parties to a contract—owner, architect, construction manager, contractor, and subcontractors is a crucial ingredient for the successful completion of a project.

The involvement of many parties is a dominant characteristic of building projects. According to Eriksson (2008) proper project planning and control require project teams to utilize appropriate project management techniques and tools. Commitment to project and top management support are the other issues related to the commitment component grouping. It has been recognized as one of the most critical factors for the successful completion of projects. Motivation is prerequisite to ensure comfortable working environment within and around project sites.

5.4 Conclusions
The construction industry is a key industry in the economy of any country worldwide. It is one of the biggest industries in the world contributing to around 10% of the global GDP. The completion of building projects in the country is, therefore, an essential aspect for the growth and development of the country and the building projects are inevitable. The study concludes that business related factors influence the completion of a project. the availability of human skills,
technology and the political environment are the most important factors that determine whether a building project will complete or not. High levels of afore mentioned factors speed up completion process of any building project.

The study further concludes that factors that are related to the procedures of the project have to be considered for any completion of a building project. The control mechanisms of any project and its delivery system such as the bidding of the project are essential. The procedures of the project affect the tendering and procurement processes of project which are a key to its completion.

It can also be concluded from the study that management factors of a project correlates with its completion time. The coordination of the subcontractor’s labor, cost and other functions of the project influence the completion process. The degree of coordination reflects in the completion process of the building project.

The study finally concludes that human related factors such as the nature off the client, management of the project and the owners’ sophistication give direction of building projects completion. The combination of human related factors from the owners, constructors and the supervisors determine the completion time. for building projects to complete in time there must be proper coordination of the human factors from all the participants of the project.

5.5 Recommendations

From the findings and conclusion, the study recommends that Organizations must provide clear guidance on how to measure the outcome of a building project. Alignment between company’s objectives and projects is crucial. Poor alignment can lead to wasted effort and resources despite completing a project within the triple constraints.

The project managers must always bear in mind that successful project management techniques will contribute to the achievement of projects, but project management will not stop a project from failing to complete. The right project will complete almost without the success of project management, but completion of project management could enhance its completion.

A good relationship between client and project team is fundamental to project completion. Projects require a collaborative environment and not an adversarial one. Integrating technology
into project management process could be one of the best ways that contribute to project completion. When team members see their test results and work progress immediately, they are more likely to be interested and motivated towards the outcome.

Project managers need to be aware of their project technology preferences and provide the tools and equipment to the project team as they can be more motivated. Implementation of technological systems can either act as a medium for change or be the means of achieving a desired change in a project.

5.6 Suggestions for Further Studies

Further research should be conducted all building firms to investigate into the challenges facing project implementation. The same study should also be conducted in other types of organizations. Another research in the area of the influence of governance structures on project implementation and project completion can be conducted. Further studies should also be done on the factors affecting stakeholders involvement in project management.
REFERENCES


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Mbat


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UNRWA, (2007), Projects completion reports, UNRWA, Gaza


APPENDICES

Appendix I: Research Questionnaire

CONSENT FORM

PROJECT TITLE: Factors influencing completion of building projects in Kenya, Ministry of Land, Housing and Urban Development, Nairobi County

RESEARCHER: Wanjau Beatrice Nyambura

<table>
<thead>
<tr>
<th></th>
<th>Please tick the box</th>
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<tbody>
<tr>
<td>1. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions.</td>
<td>☐</td>
</tr>
<tr>
<td>2. I understand that my participation is voluntary and I am free to withdraw at any time without giving reason</td>
<td>☐</td>
</tr>
<tr>
<td>3. I agree to take part in the above study</td>
<td>☐</td>
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</tbody>
</table>

Name of Participant    Date    Signature

Name of Researcher     Date    Signature
Kindly respond to the following questions by ticking on the appropriate box (√) or filling the answers in the blank spaces.

SECTION A: DEMOGRAPHIC INFORMATION

1. What is your gender?
   - Male ( )
   - Female ( )

2. What is your age?
   - 18-25 years ( )
   - 26-35 years ( )
   - 36-45 years ( )
   - 46 years and above ( )

3. What is your highest level of education? ( )
   - Certificate ( )
   - Diploma ( )
   - Undergraduate degree ( )
   - Postgraduate degree ( )

4. Kindly indicate here the experience of the team leader in the following categories in terms of years they have been practicing in their respective deployments.
   
   (i) Top Management ..............................................................(years)

   (ii) Middle Level Management (e.g. Operations Team) ....................(years)

   (iii) Technical Management (e.g. Projects Managers, Procurement Team) .......(years)

   (iv) Lower Level Management (e.g. Site Managers/foremen)...................(years)

   (v) Others (please specify).......................................................(years)

   ..........................................................................................

5. Kindly indicate here with a (√) mark if the consultant team was in-house (from ministry) or private consultants
SECTION TWO: FACTORS INFLUENCING COMPLETION OF BUILDING PROJECTS

BUSINESS RELATED FACTORS

6. To what extent does business related factors affect the completion of building projects in the Ministry of Land, Housing and Urban Development?

<table>
<thead>
<tr>
<th>To a very great extent</th>
<th>To a great extent</th>
<th>To a moderate extent</th>
<th>To a little extent</th>
<th>To no extent</th>
</tr>
</thead>
</table>

7. To what extent do the following attributes of business related factors influence the completion of building projects in the Ministry of Land, Housing and Urban Development. Use a scale of 1-5 where 1= very great extent, 2= great extent, 3= moderate extent, 4= little extent and 5 = not at all

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<thead>
<tr>
<th>Commitment of all parties to the project</th>
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<tr>
<td>Adequacy of funding</td>
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<td>Technology availability</td>
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<td>Human Skill availability</td>
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<td>X-Factor (fraudulent practices, corruption, favoritism, lack of ethics, etc.)</td>
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<td>Economic environment</td>
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<td>Social environment</td>
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<td>Political environment</td>
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<td>Physical work environment</td>
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<td>Industrial relations environment</td>
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<td>Administrative approvals environment</td>
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</table>

**PROJECT PROCEDURES**

8. To what extent do project procedures influence the completion of building projects in the Ministry of Land, Housing and Urban Development?

   - To a very great extent [ ]
   - To a great extent [ ]
   - To a moderate extent [ ]
   - To a little extent [ ]
   - To no extent [ ]

9. To what extent do the following attributes of project procedures influence the completion of building projects in the Ministry of Land, Housing and Urban Development. Use a scale of 1-5 where 1= very great extent, 2= great extent, 3= moderate extent, 4= little extent and 5 = not at all
### Project Delivery System

- Design-bid-build, design build

### Project Bidding Method

- Price based competitive bidding, negotiated bidding, best value bidding

### Project Contract Mechanism

- Lump sum, unit price, cost plus

### Control Mechanism

### Feedback Capabilities

### Troubleshooting

### Quality Assurance Program

### Safety Program

### Project Management Factors

10. To what extent do project management factors influence the completion of building projects in the Ministry of Land, Housing and Urban Development?

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<tr>
<td>Project delivery system (design-bid-build, design build)</td>
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<tr>
<td>Project bidding method (price based competitive bidding, negotiated bidding, best value bidding)</td>
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<td>Project contract mechanism (lump sum, unit price, cost plus)</td>
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<td>Control mechanism</td>
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<td>Feedback capabilities</td>
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<tr>
<td>Troubleshooting</td>
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<tr>
<td>Quality assurance program</td>
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<td>Safety program</td>
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</table>

11. To what extent do the following attributes of project management factors influence the completion of building projects in the Ministry of Land, Housing and Urban Development. Use a scale of 1-5 where 1= very great extent, 2= great extent, 3= moderate extent, 4= little extent and 5 = not at all.
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<tr>
<td>Communication systems</td>
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<td>Upfront planning efforts</td>
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<td>Monitoring and updating plans</td>
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<td>Developing an appropriate structure</td>
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<td>Control of subcontractor work</td>
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<td>Implementing safety program</td>
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<td>Implementing QA programs</td>
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<td>Coordination effectiveness</td>
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<td>Decision making effectiveness</td>
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<td>Clear objectives and scope</td>
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<td>Holding of regular meetings</td>
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<td>Developing standard procedures/absence of bureaucracy</td>
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<td>Prior project management experience</td>
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<td>Risk identification and allocation</td>
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<td>Formal dispute resolution process</td>
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<td>Commitment to project</td>
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<td>Top management support</td>
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<td>Effective Strategic Planning</td>
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<td>Adequate funding</td>
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throughout the Project

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<th>Comprehensive Contract documentation</th>
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<tr>
<td>Up to date technology utilization</td>
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**HUMAN-RELATED FACTORS**

To what human-related factors influence the completion of building projects in the Ministry of Land, Housing and Urban Development?

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<tr>
<th>To what extent</th>
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<tr>
<td>To a very great extent</td>
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<td>To no extent</td>
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</table>

1. To what extent do the following attributes of human-related factors influence the completion of building projects in the Ministry of Land, Housing and Urban Development. Use a scale of 1-5 where 1= very great extent, 2= great extent, 3= moderate extent, 4= little extent and 5 = not at all

<table>
<thead>
<tr>
<th>Nature of client (funding and organizational structure)</th>
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<tr>
<td>Client’s knowledge of construction project organization</td>
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<td>Owner’s construction sophistication</td>
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<td>Design team experience</td>
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<td>Adequacy of plans and specifications</td>
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<td>Contractor experience</td>
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<td>Site management</td>
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<td>Contractor’s cash flow</td>
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<td>Effectiveness of cost control system</td>
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<td>Speed of information flow</td>
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<td>Project Manager’s competence</td>
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<td>Coordinating ability and rapport of project manager with</td>
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<td>owner/ owner representatives</td>
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<td>Motivating skills of project manager</td>
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<td>Project manager’s commitment to meet quality, cost and</td>
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<td>time</td>
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<td>Project manager’s early and continued involvement in</td>
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<td>Project manager’s adaptability to changes in project</td>
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<td>plan</td>
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<td>Construction control meetings</td>
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**PROJECT COMPLETION**

10. What has been the trend of the following aspects of building project completion rate for the last five years?

<table>
<thead>
<tr>
<th></th>
<th>Greatly Improved</th>
<th>Improved</th>
<th>Constant</th>
<th>Decreasing</th>
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<td>Cost</td>
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<td>Quality</td>
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<td>Client Satisfaction</td>
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THANK YOU.