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INFLUENCE OF MONITORING AND EVALUATION PARAMETERS ON PERFORMANCE OF NATIONAL GOVERNMENT FUNDED CONSTRUCTION PROJECTS IN UASIN GISHU COUNTY, KENYA.

By *CALEB ODHIAMBO ONJURE*

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INFLUENCE OF MONITORING AND EVALUATION PARAMETERS ON PERFORMANCE OF NATIONAL GOVERNMENT FUNDED CONSTRUCTION PROJECTS IN UASIN GISHU COUNTY, KENYA.

CALEB ODHIAMBO ONJURE

A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF HUMAN RESOURCE DEVELOPMENT, IN THE SCHOOL OF BUSINESS IN PARTIAL FULFILLMENT FOR MASTER OF SCIENCE IN PROJECT MANAGEMENT OF JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY.

SEPTEMBER, 2016

DECLARATION

This research thesis is my original work and has not been presented for a degree in any other university.

Signature …….. Date…….

Caleb Odhiambo Onjure

HD317-C007-4146/15

This research thesis has been submitted for examination with my approval as University Supervisor

Signature …… Date ……

Dr. Daniel Mungai Wanyoike

JKUAT-Kenya

DEDICATION

This work is dedicated to my wife Mrs. Faith Odhiambo, our beloved daughters Martha Diedra and Pam Farrel, and our dear son Adrian Prince.

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I wish to register my appreciation to all who contributed to the successful completion of this research project in one way or another. My gratitude goes to the almighty God who has been my guide throughout. My gratitude also goes to the management and staff of Jomo Kenyatta University of Agriculture and Technology Nakuru CBD Campus for providing and environment conducive for academic excellence. Special thanks to my supervisors Dr. Daniel Mungai Wanyoike for his invaluable guidance and motivation. Finally I would like to thank my classmates Damaris and Laura for their encouragement and brilliant ideas. God bless you.

ABSTRACT

The general objective of the study was to identify the influence of monitoring and evaluation on the performance of National Government funded construction projects in Uasin Gishu County, Kenya. The specific objectives of the study were to determine influence of monitoring tools on the performance of government funded construction projects in Uasin Gishu County, Kenya, to establish the influence of quality of field data collection methods on the performance of government funded construction projects in Uasin Gishu County, Kenya, to examine the influence of on the performance of National Government funded construction projects in Uasin Gishu County, Kenya, to determine the influence of project team effort on the performance of National Government funded construction projects in Uasin Gishu County, Kenya, and to find out the influence of project management as an intervening variable on monitoring and evaluation and the performance of National Government funded construction projects in Uasin Gishu County, Kenya. Theories used are theory of change, information processing theory, knowledge flow, and structural contingency theory. The methodology used was literature review and field study. The field survey employed was self-administered questionnaire instrument as well as random sampling. The study used quantitative research methodology and employed field survey design as well as literature review. The Target population was 215, and the sample size of 134. Questionnaires were distributed to clients, consultants, contractors, ministry of public works supervisors, randomly selected from projects that are sampled responded. The quantitative data and descriptive statistics were analyzed by the use of statistical package for social scientists (SPSS) and results reported in tables showing percentages and ratios. The findings revealed that Quality of field data collection method has the most significant influence of the performance of national government construction projects in Uasin Gishu County, Kenya. The study recommended improvement and management support for project management analysis, and tracking of variance from specific plans; the use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system. The study also recommended management support for the use of quality data collection methods on the projects, identifying where systems are falling short and project delivery capability, and more emphasis on cost of quality. The study further recommended the develop human resources in the construction industry through proper and continuous training programs about construction projects performance. It also recommended a clear mission and vision in place to formulate, implement and evaluate the performance of national funded construction projects, and the introduction of contract management training for relevant stakeholders.

TABLE OF CONTENT

APPENDICES

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS AND ACRONYMS

AC: Actual Cost

ACWP: Cost of Work Performed

BCWP: Budgeted Cost of Work Performed

BCWS: Budgeted Cost of Work Scheduled

EVM: Earned Value Management

GDP: Gross Domestic Product

IES: Institute for the International Education of Students

KNBS: Kenya National Bureau of statistics

M & E: Monitoring and Evaluation

NIESR: National Institute for Economic and Social Research

OECD: Organization for Economic Corporation and Development

PMI: Project Management Institute

PV: Planed Value

QI: Quality Improvement

R&D: Research and Design

UNRWA: United Nations Relief and Works Agency

DEFINITION OF TERMS

Analytical Skills: could be defined as understanding a situation, issue, problem by breaking it into smaller pieces, or tracing the implications of a situation in a step-by-step way (Draft & Marcic, 2009).

Construction Projects: Are projects undertaken by the government to facilitate provision of infrastructure to serve as a platform for production activities and comprises buildings, road network, bridges for enhancement of economic development (Mwaikogi, 2011).

Data collection Method: is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes (Mugenda & Mugenda, 2003).

Monitoring and Evaluation: a process that help to improve performance and achieve results. Its goal is to improve current and future management of outputs, outcomes and impact (Anbari et al., 2008).

Performance: accomplishment to a given task measured against a given task measured against set standards (Strabler, 2004).

Teams: the basic structure of how projects, activities and tasks are being organized and managed within companies worldwide (Atkinson, 1999).

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

The construction Industry is the backbone for economic development. It is a sector involved with erection, repair and demolition of buildings and civil engineering structures in an economy (Hildebrandt, 2000). According to the Kenya National Bureau of statistics (KNBS;2015), the construction industry contributed to 4.1%,4.2%,4.4 and 4.8% towards Gross Domestic Product (GDP) for the years 2011,2012,2013 and 2014 respectively. This is an average of 4.3% compared to 10% GDP for developed countries (Kenny, 2007 and, Hildebrandt, 2000).Clearly there is need for growth of the construction industry in Kenya to match the developed economies. The construction industry is complex in its nature because it comprises large numbers of parties as owners (clients), contractors, consultants, stakeholders, and regulators. Despite this complexity, the industry plays a major role in the development and achievement of society's goals.

Throughout the world, the business environment within which construction organizations operate continues to change rapidly. The industry is undergoing a transitional change from an industry employing conventional technologies to a more systematic and mechanized industry employing the latest computer and communication technologies. This is vital for the future health of the industry, given the trend towards global competition and the advent of the economy (Ah, 2000). With increasing higher user's requirements, environmental awareness and limited resources on one side, and high competition for construction business marketplace on the other side, contractors have to be capable of continuously improving their performance (Samson & Lema, 2005).

Kenya is no exception; the local construction industry is one of the main economic engine sectors, supporting the Kenyan national economy. However, many local construction projects report poor performance due to many evidential project-specific causes such as: unavailability of materials; excessive amendments of design and drawings; poor coordination among participants, ineffective monitoring and evaluation, inefficient feedback, and lack of project leadership skills (UNRWA, 2006). The ever-important macro-level political and economic factors have also been related to poor projects performance (UNRWA, 2006).

Project performance can be measured and evaluated using a large number of performance indicators that could be related to various dimensions (groups) such as time, factors affecting the performance of construction projects in the cost, quality, client satisfaction, client changes, business performance, health and safety (Cheung et al., 2004). Time, cost and quality are however, the predominant performance evaluation dimensions. Another interesting way of evaluating project performance is through two common sets of indicators (Pheng & Chuan, 2006). The first set is related to the owner, users, stakeholders, and the general public; the groups of people, who will look at project performance from the macro viewpoint. The second set comprises the developer and the contractor; the groups of people who will look at project performance from the micro viewpoint.

Generally, performance dimensions may have one or more indicators, and could be influenced by various project characteristics. For example, Dissanayaka & Kumaraswamy (1999) found that project time and cost performances get influenced by project characteristics, procurement system, project team performance, client representation's characteristics, contractor characteristics, design team characteristics,

and external conditions. Similarly, Iyer & Jha (2005) identified many factors as having influence on project cost performance, these include: project manager's competence, top management support, project manager's coordinating and leadership skills, monitoring and feedback by the participants, decision- making, coordination among project participants, owners' competence, social condition, economic condition, and climatic condition. Coordination among project participants, however, was identified as the most significant of all the factors, having maximum influence on cost performance. Interestingly, Love et al. (2005) examined project time-cost performance relationship, and their results indicate that cost is a poor predictor of time performance. Elyamany et al. (2007) introduced a performance evaluation model for construction companies in order to provide a proper tool for the company's owners, shareholders and funding agencies to evaluate the performance of construction companies in Egypt. Project performance remains a prominent issue in project delivery all over the world. This is so because projects involve defined objectives which must be achieved and numerous resources which need to be efficiently utilized.

1.1.1 Construction Industry Performance

Mankind has undertaken and has been engaged in some form of construction activities ever since the dawn of civilization. He has created architectural marvels which came to be regarded as the wonders of the world, for example, the Pyramids of Egypt, the Great Wall of China, the Angkor temples of Cambodia, the tower of Babel. Construction is an everlasting activity across the globe contributing between 6-9% of the Gross Domestic Product in most countries. Construction constitutes more than half of the fixed capital formation as infrastructure and public utilities capital works required for economic development (Chitkara, 2009).

The key to economic and social growth in all countries, developed and developing, is better management in all sectors: agriculture, industry, public works, education, public health, government (Louis, 1988). Proper planning and anticipating the problem areas is all part of the project management process. There is growing awareness of the need to improve both the productivity and quality of projects. Successful performance in a construction project helps to deliver good products to the client. The quality of finished project, construction cost and construction time were the most important project priorities of performance criteria within client perspective Malaysia (Arazi, 2011). Delays in project completion and poor performance in the construction industry has been experienced and has led to failure in achieving effective time and cost performance (Aftab, 2012). This delay is a common phenomenon that occurs especially where the government projects are concerned in Malaysia (Tawil, 2013).

In a study conducted to identify significant factors causing cost overruns in large construction projects in Malaysia, the top three factors are fluctuation of materials, cash flow and financial difficulties faced by contractors and poor site management and supervision (Rahman, 2013). Oyewobi (2012) observed it is almost impossible to have projects completed within the initial cost and time in Nigeria, as a result of many factors the construction industry is being plagued with ranging from estimating1 risk of time and cost overruns. Defects in design, inflation, contractors' competence, political uncertainty as well as changes in government had the greatest impact on contractors' tender figure which contributes to projects' delay.

In Pakistan the problem of project delays hence poor project performance is a fact that occurs mostly in construction industry (Haseeb, 2011). Delays are always measured

as expensive to all parties concerned and very often it will result in clash, claims, total desertion and much difficulty for the feasibility and it slows the growth of construction industry. Natural disasters like flood and earthquake, Financial and Payment problems, improper planning and poor site organization, insufficient experience and shortage of materials and equipments are factors that cause delays. Abdelhak (2012) makes similar observations of problems of delay in the field of construction. Analysis of causes of deadline slippage in construction projects completed in several regions of Morocco were identified as errors made in the initial budget assessment, volatility of the architecture and engineering programme (multiple modification requests) and construction site hazards.

Disputes have frequently been claimed to proliferate in the construction industry resulting in drawbacks and disharmonizations in the completion of the projects with considerable costs. The following are dispute factors related to public work projects noted in Thailand:- violations of conditions of contract, insufficient work drawing details, delays in the progress payments by the owner, poor evaluation of completed works, inaccurate bill of quantities and unrealistic contract durations during the project construction phase (Borvorn, 2011). In Kenya, Nyika (2012) noted that only 20.8 per cent of the projects were implemented on time and budget, while 79.2 per cent exhibited some form of failure. The major causes of failures were insufficient implementing capacity, poor project management, weak project design and political interference.

Governments and organizations usually embark on different projects with the aim of creating new service or improving the functional efficiency of the existing ones. Such projects require appropriate skills and techniques that encompass good and sound

skills to manage limited budgets, monitor shrinking schedules and unpredicted outcomes while at the same time dealing with people and organizational issues. Developmental facilities like housing, roads, and power plants are undertaken with strategic aims of developing infrastructure to facilitate economic growth (Olateju, 2011; Chitkara, 2009). Construction Projects are undertakings that have a beginning and an end and are carried out to meet established goals within costs, schedules and quality objectives (Marion, 2002). These specified deliverables (also commonly known as scope), are also referred to as "direct project objectives or goals" have been accepted as the primary determinants of project success or failure (Jack, 2012). Time and cost performances constitute fundamental criteria for success of any project (Aftab, 2012). Every project has a limited budget and there is a point at which there are no resources remaining to fund the work of the project. If the Project Manager goes beyond that point, then the work of the project will remain unfinished until new funds are available. A critical step of beginning a successful project is making certain that the cost estimates for the project is reasonable and acceptable (Griffin, 2010).

1.2 Statement of the Problem

The failure of any construction project is mainly related to the problems and failure in performance. Performance of the project is considered as a source of concern to both public and private sector clients. Project performance measurements include time, budget, safety, quality and overall client satisfaction. Studies demonstrate that monitoring and evaluation are plethora of factors with the potential to influence the different dimensions of project performance. As such, this research study sought to identify how monitoring and evaluation influence the performance of construction projects. Following this, the report on the findings of a survey targeting project owners, consultants and contractors attempts to shed some light on how each project

party perceived the relative importance of these factors. Finally, the paper formulated a number of recommendations in order to bridge the gap between the different perceptions thus improving the level of project performance in Kenya. This research, therefore critically examined the role of monitoring and evaluation as a factor that influences performance of national government funded construction project in Uasin Gishu County, Kenya.

1.3 Research Objectives

1.3.1 General Objective

To analyze the influence of monitoring and Evaluation on the performance of National Government funded construction projects in Uasin Gishu County, Kenya.

1.3.2 Specific Objective

i. To determine the influence of Monitoring tools used on the performance of National Government funded construction projects in Uasin Gishu County, Kenya.
ii. To establish the influence of Quality of field data collection methods on the performance of National Government funded construction projects in Uasin Gishu County, Kenya.
iii. To examine the influence of degree of analytical skill required on the performance of National Government funded construction projects in Uasin Gishu County, Kenya.
iv. To determine the influence of Project Team effort on the performance of National Government funded construction projects in Uasin Gishu County, Kenya.

v. To determine the influence of contract management in the relationship between Monitoring and Evaluation factors and the performance of National Government funded construction projects in Uasin Gishu County, Kenya.

1.4 Research Hypotheses

i. H_{01}: There is no significant influence of monitoring tools on the performance of National Government funded construction projects in Uasin Gishu County, Kenya.

ii. H_{02}: There is no significant influence quality of field data collection methods on the performance of government funded construction projects in Uasin Gishu County, Kenya.

iii. H_{03}: There is no significant influence of degree of analytical skill required on the performance of national government funded construction projects in Uasin Gishu County, Kenya.

iv. H_{04}: There is no significant influence of project team effort on the performance of national government funded construction projects in Uasin Gishu County, Kenya.

v. H_{05}: There is no significant influence of contract management in the relationship between monitoring and evaluation factors and the performance of national government funded construction projects in Uasin Gishu County, Kenya.

1.5 Justification of the Study

Construction Industry in any country plays key role in economic development and effective implementation of Construction projects contribute significantly to the economy. The outcome of this research study was expected to contribute immensely and positively to the Construction Industry and in general the economic development

of the country as it will assist project managers and implementers in addressing the issues that negatively influence effective implementation of Construction Projects. If this is done, then the high number of stalled projects, experiences of cost overruns and extended construction periods beyond the original completion dates will cease in this very important industry thereby save the country from unnecessary loss and wastage of much needed resources which are in scarce supply. The research findings will also sought to extend knowledge in the world of academics in the same area of the study; it will be useful as literature in the area of study.

1.6 Scope of the Study

The study attempted to analyze the influence of monitoring and Evaluation on the performance of National Government funded construction projects in Uasin Gishu County, Kenya. Only the construction projects in Uasin Gishu County, Kenya, designed and supervised by the Ministry Public Works were considered. The study independent variable was monitoring tools, quality of field data collection methods, degree of analytical skills required, and project team effort. The dependent variable was the performance of National Government funded construction projects in Uasin Gishu County, Kenya. The study was carried out between May and August, 2016.

1.7 Limitations of the study

The challenges encountered during the study include financial challenges given the rising cost of materials in Kenya today and transportation. Furthermore, the subject of the study is sensitive and making appointment with some respondents caused some delays. However, the researcher used the focused groups effectively for better results.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

The chapter explores the study objectives and their effects on the performance of National Government funded construction projects in Kenya. The themes of the research are developed from the theoretical and empirical reviews that are relevant from the variables. The chapter is structured into empirical reviews on variables and theoretical framework that will facilitate the development of conceptual framework and knowledge gap.

2.2 Theoretical Review

The theoretical review is a logically developed, described and elaborated network of associations among the variables deemed relevant to the problem situation identified (Sekaran & Bougie, 2010). A theoretical framework introduces and describes the theories that attempt to explain the research problem under study with a keen focus on the specific variables being sought in the study (William, 2006).

2.2.1 Theory of change

According to Eyben (2008), Rick Davies, an influential monitoring and evaluation specialist, defines a theory of change simply as: 'The description of a sequence of events that is expected to lead to a particular desired outcome' The Comic Relief review puts forward a learning-based defined theory of change as: 'Theory of change is an on-going process of reflection to explore change and how it happens and what that means for the part (Funnell & Rogers, 2011). It locates a programme or project within a wider analysis of how change comes about. It draws on external learning about development. It articulates our understanding of change but also challenges us to explore it further. It acknowledges the complexity of change: the wider systems and

actors that influence it. It is often presented in diagrammatic form with an accompanying narrative summary.' (James, 2011)

Theory of change is a dynamic, critical thinking process, it makes the initiative clear and transparent - it underpins strategic planning. It is developed in a participatory way over time, following a logical structure that is rigorous and specific, and that can meet a quality test by the stakeholder. It is about buying into the critical thinking (Douthwaite et al., 2003). Theory of change thinking is viewed as one approach to help people deal positively with the challenges of complexity (Funnell & Rogers, 2011). The emphasis on country ownership in development cooperation is focusing attention on supporting country programmes, collaborating and innovating with local actors, institutions and local capacities, as well as responding to new configurations of development actors (Eyben et al, 2008).

According to Rogers, Every programme is packed with beliefs, assumptions and hypotheses about how change happens –about the way humans work, or organizations, or political systems, or eco-systems (Eyben et al, 2008). Theory of change is about articulating these many underlying assumptions about how change will happen in a programme.' theory of change is best seen as theory of change thinking, a flexible approach to think through these fundamental issues. It is both a process and a product. The central idea in theory of change thinking is making assumptions explicit. Assumptions act as 'rules of thumb' that influence our choices, as individuals and organizations (Funnell & Rogers, 2011). Assumptions reflect deeply held values, norms and ideological perspectives. These inform the design and implementation of programmes. Making assumptions explicit, especially seemingly obvious ones, allows them to be checked, debated and enriched to strengthen programmes (Funnell & Rogers, 2011). By activating critical reflection, theory of

change's real potential is seen as supporting programmes' innovation and adaptation in response to dynamic contexts (Douthwaite et al., 2003). As it encourages on-going questioning of what might influence change in the context and drawing on evidence and learning during implementation, theory of change thinking can inspire improvements in programmes, moving beyond technocratic responses towards more realistic and feasible interventions that are responsive to dynamic contexts. Theory of change demands an institutional willingness to be realistic and flexible in programming responses, both at the design stage and, more importantly, in implementation and performance management (Funnell & Rogers, 2011). To support a better fit between programme and context, it may be that chosen interventions are not technically the most efficient or effective, but are justified as the most appropriate for influencing change within the social, political and environmental realities of their particular context. Contributors acknowledged that a realistic, adaptive approach should be recognized as good programme practice, but the realities of funding and performance management systems in the international development sector make this very challenging to achieve at all levels (Eyben et al., 2008).

Working with theory of change thinking can be challenging but it can create a strong organizing framework to improve programme design, implementation, evaluation and learning if some of the following enabling factors can be achieved: People are able to discuss and exchange their personal, organizational and analytical assumptions with an open, learning approach (Douthwaite et al., 2003). Theory of change thinking is used to explain rationales and how things are intended to work, but also to explore new possibilities through critical thinking, discussion and challenging of dominant narratives for the benefit of stakeholders (Funnell & Rogers, 2011). Critical thinking is cross-checked with evidence from research (qualitative and quantitative) and wider

learning that brings other analytical perspectives, referenced to stakeholders', partners' and beneficiaries' contextual knowledge. A number of theories of change are identified as relevant 'pathways' to impact for any given initiative, rather than a single pathway, with acknowledgement of the non-linearity and emergent nature of these (Douthwaite et al., 2003). Documented theories of change and visual diagrams are acknowledged as subjective interpretations of the change process and used as evolving 'organising frameworks' to guide implementation and evaluation, not rigid predictions or prescriptions for change (Eyben et al, 2008). Theory of change frameworks and visuals are used to support a more dynamic exchange between donors, funders, grantees, development partners, programmes and communities, to help open up new areas and challenge received wisdoms. Donors, funders and grant-makers are able to find ways to support justified adaptation and refocusing of programme strategies during implementation, while there is time to deliver improvements to stakeholders and communities.

Uses of theory of change thinking include: Clarifying impact pathways in multiple operational contexts and sites; Linking activities to changes at different levels: community, sub-national, national, international; Results-management, evaluation and impact Assessment; Linking multiple projects to a higher-level theory of change; Foundation for monitoring and evaluation planning; Identifying synergies between strategies; Identifying trade-offs and negative or unintended consequences; Programme scoping and design, strategic planning (Anderson, 2005). Theory-based evaluation of large-scale programmatic areas; Approaches to programme design and commissioning, country, sector and thematic; Clarifying strategies and impact pathways Clarifying links between organizational values, vision, mission, strategy and programmes; Conceptualizing impact, mapping thematic theories of change; Country

programme impact pathways; Mapping collaborative relationships and influencing strategies; Monitoring, evaluation and learning frameworks; Linking multiple projects to a higher-level outcomes framework; Testing links in theories of change in complex programme areas; Supporting empowerment by linking individual change to wider change Theory-based impact evaluation for large-scale complex programmes; Theory of change foundation for programme design, monitoring and evaluation and learning Theory of change-based strategic planning; Exploring theory of change-based methodologies for small-scale evaluations (Douthwaite et al., 2003).

2.2.2 Information Processing Theory

Although scholars argue that knowledge-based theories of the firm are incomplete (Grant, 1996; Spender, 1996; Nonaka et al., 2000), the information processing paradigm on which they rest is well developed within academic discourse. In particular, the work of numerous scholars (Galbraith, 1973; Galbraith, 1974; Tushman & Nadler, 1978; Tushman, 1979; Levitt et al., 1999), which translates well-understood dimensions of organizational structure to the information processing framework and operationalizes them into useful constructs, is a powerful development for theorizing about organizational design. These advances are particularly useful to the extent that such operationalizations bridge field, computational and laboratory studies (Nissen et al., 2004; Leweling & Nissen, 2007) and thus contribute to "full cycle" organizational theorizing (Chatman & Flynn, 2005).

Stated briefly, information processing theory views organizations as collective decision making systems (March & Simon, 1958) in which the processing of information serves as the primary locus of activity (Tushman & Nadler, 1978). Bounded rationality (Simon, 1957; Simon, 1997) suggests that organizational agents have limited capacity for processing information, leading scholars to argue that

organizations that structure their information processing functions more efficiently will outperform organizations with less efficient information processing structures (Radner, 1993; Keller, 1994; Rogers et al., 1999). Moreover, some scholars (Drucker, 1993; Grant, 1996; Child & McGrath, 2001; Kellogg et al., 2006) argue that contemporary macroeconomic shifts emphasize the imperative for organizing information processing structures efficiently as information (and knowledge) flows, not material flows, serve as the primary productive output of organizations.

Tushman & Nadler (1978) identify core assumptions that serve as the epistemic underpinnings of information processing theory. They argue, for example, that inherent within the information processing view is an open systems perspective of organizing in which one of the primary functions of collective action is to reduce environmental uncertainty through efficient and cogent processing of information. As a result, the basic unit of analysis becomes the organizational subunit, suggesting that the information processing perspective holds particular utility for exploring work groups. Tushman & Nadler (1978) also suggest that task complexity and task interdependence are two critical factors to consider when assessing "fit" between a collective's information processing structure and task environment. Specifically, routine tasks with minor levels of intra-unit interdependence should require minimal information processing. However, tasks that are complex, dubitable or involve high levels of interdependence are "associated with greater uncertainty" and thus create requirements for high levels of information processing. In latter task environments, Kellogg et al (2006) concur, suggesting that adaptation and horizontal collaboration will represent the core competencies of firms rather than specialized routines. This theorizing implies that low differentiation and low formalization of information processing functions should be associated with higher collective performance,

particularly when tasks are complex. A summary of Tushman & Nadler (1978) concept of fit within the information processing paradigm Information processing theory thus suggests that organizations with information processing structures that more adequately fit their task characteristics and task environments should benefit from greater efficiencies-leading, over time, to higher performance.

2.2.3 Knowledge Flow Theory

Nonaka (1994) critiques the organizational information processing paradigm as projecting an unduly "passive and static" view of organizations, one in which organizations are viewed narrowly as input-process-output puzzle solvers. Instead, he argues, organizations dynamically create both information and knowledge as they undertake problem-solving, and it is through an ability to transfer this knowledge among organizational parts that organizations succeed in accomplishing complex, creative tasks-such as innovation. More specifically, he argues that within organizations, knowledge creation results from the "continuous dialogue between tacit and explicit knowledge" undertaken by organizational members, and identifies four types of knowledge creation: 1) socialization (tacit to tacit), 2) externalization (tacit to explicit), 3) internalization (explicit to tacit) and 4) combination (explicit to explicit). For the purpose of this dissertation, I concentrate on combination, or the transfer of explicit knowledge to explicit knowledge, which Nonaka (1994) specifies as rooted within information processing theory. Nonaka (1994) suggests that the meaning of terms such as "information" and "knowledge" are undergirded by the epistemic stance of the individual invoking these symbols. In his view, information consists of a "flow of messages", while knowledge becomes the "justified true belief" enabled by available information. Thus information provides context and meaning—enabling

interpretation, but knowledge provides belief and anchoring, enabling action (Nissen, 2006).

Although many scholars argue a theoretical distinction between information and knowledge, operationalizing the difference between information and knowledge into cogent theoretical constructs (Bagozzi & Phillips 1982; Kerlinger & Lee 2000) sometimes presents practical problems. What constitutes information in one context may be construed as knowledge in another, depending upon the subjective and contextually situated viewpoint of the user of information and knowledge. Nonetheless, Nonaka's (1994) and Nissen's (2006) distinctions of knowledge as enabler of action allow for numerous, albeit simplistic, distinctions to emerge: lists of objects and actions, for example, would reflect information in the same context in which utilizing or applying such lists would reflect knowledge. Robert's Rules of Order, for example, reflect information about a manner in which formal meetings might be structured, while decisions about whether to adhere to or deviate from Robert's Rules in a particular setting reflect knowledge. Even in this simple example, we note a continuous interplay between information and knowledge. The information about Robert's rules exists, remaining stagnant and persistent. Deciding about whether to follow Robert's rules, however, is an unremitting task and requires combining information not only about Robert's Rules, but also continuously updated information about the current setting.

Only through combining both information and knowledge is an individual able to determine whether Robert's rules are applicable to the given situation right now. Information enables the meeting participant to interpret and understand the context in which he finds himself; knowledge enables the meeting participant to determine what

action to take next. Walz et al (1993) point out that in complex knowledge-based work such as software design, individuals rarely possess all knowledge necessary to complete the assigned task and hence must either acquire or create knowledge in order to perform successfully. Eppler & Sukowski (2000) concur, arguing that team leaders must create adequate knowledge transfer processes to facilitate high team performance. Since knowledge creation occurs at the individual level and knowledge is then transferred to larger groups (Nonaka, 1994; Grant, 1996; Grant, 1996) capable of storing and accumulating it (March, 1991), we would expect teams that share both knowledge and information to outperform those that share only information. We would also expect that individuals operating within teams that share both knowledge and information would outperform individuals operating within teams that share only information. These postulates appear to particularly befit situations in which the task environment is highly uncertain (Galbraith, 1974; Galbraith, 1977) due to the task having characteristics of nonroutineness (Perrow, 1967), complexity (Campbell, 1988), and interdependence (Thompson, 1967). However, the postulates could also clearly benefit from empirical analysis in a laboratory setting as a complement existing field work.

Evidence of learning is often operationalized as improvement in observed performance over time, sometimes captured in learning curves (Argote, 1999). As Argote et al (2003) have commented, collective learning, individual learning and knowledge management are linked through a number of theoretical traditions– including cognition, psychology, information systems, economics, and others. Argote et al (2003) caution, however, that a growing tendency to fragment research applicable to the two disciplines of organizational learning and knowledge management runs “the risk of propagating a highly fractionated view of

organizational learning and knowledge management". Specifically, a team's capacity to share, generate, evaluate and combine knowledge affects team learning (Argote, 1999); the knowledge management and learning processes of teams are entwined. Further, although Nonaka (1994) argues that knowledge is created by individuals, not teams or organizations, an emerging trend in the extant literature credits group outcomes not as a sum of individual achievements, but rather as the result of multi-level interactions between individuals and groups (Hargadon & Bechky, 2006).

Such thinking is consistent with the complex systems literature in which macro-level outcomes (often labeled as emergent behaviors) are credited as resulting from the outputs and interactions of system components, rather than just the summed outputs of the system components.

Drawing heavily on Weick's (1995) sense-making framework, creativity within groups, for example, is coming to be viewed as an interactive process rather than an outcome (Drazin et al., 1999), and creative solutions are viewed as resulting not only from individual insights, but also the interactions of individuals in momentary collective processes such as help giving or reflective reframing (Hargadon & Bechky, 2006). Current theorizing thus suggests that individual performance not only contributes to group processes, but is also influenced by group processes. Moreover, Barrett (1998) describes how uncertain task environments with equivocal information require "maxim[al] learning and innovation" and concurrently suggests that "management of knowledge development and knowledge creation" is a key responsibility for contemporary managers. Particularly in uncertain task environments, then, knowledge sharing and perhaps more generically, knowledge management emerges as an important group process for explaining individual and collective performance (Fong et al., 2007).

Nonaka (1994) argues that individuals, not organizations, create knowledge, and as a result "organizational knowledge creation should be understood in terms of a process that 'organizationally' amplifies the knowledge created by individuals, and crystallizes it as part of the knowledge network of the organization". Given that organizations vary considerably on multiple dimensions, it is reasonable to extend Nonaka (1994) argument into an assertion that some organizations will prove more adept at "amplifying" the knowledge created by their members than others. As organizations depend upon information flows to carry individually-created knowledge from one organizational agent to a second and the structure of information flows within organizations can vary widely, we would expect that organizations with more optimal information flows relative to the task environment are able to leverage knowledge creation of its members more ably than other organizations undertaking similar tasks.

Put differently and consistent with the longevity of structural and configurational concepts within organizational theorizing, then, we would expect that organizations that structure information flows in certain ways as minimal as those structures may be (Barrett, 1998) will prove better poised to convert its members' knowledge creation into higher performance than similar organizations with alternatively structured information flows. Although limited, this assertion is not without existing empirical support. Brooks' (1994) work suggests, for example, that hierarchal structures constrain team knowledge sharing and hence result in suboptimal performance.

2.2.4 Structural Contingency Theory

Levels of analysis for research informed by structural contingency theory have primarily centered upon organizations and organization populations (Schoonhoven,

1981; Pennings, 1987), although interesting contingent-theoretic work has also emerged within inter-organizational (Burt et al., 1994) and work group (Keller, 1994) settings. Perhaps surprisingly, units of analysis for organizational contingency studies have often been managers, top management teams or small work groups (Baumler, 1971; Reeves & Turner, 1972; Argote, 1982).

Hollenbeck et al (2002) argue that "there is value in expanding the idea of fit from the organizational level to the team level", and further suggest that theorizing about structure-contingency interactions at the team level could have significant explanatory power for team performance. This assertion is intuitively appealing, as reasonably-sized teams (Bavelas, 1950 and Guetzkow & Simon, 1955 used five-person teams in their pioneering studies) face many of the same structural and contingency pressures as their organizational counterparts. Further, distinctions about the structure of work processes when comparing large teams and small firms are often difficult to explicitly identify, and concepts such as centralization, formalization, and differentiation apply equally well at multiple levels of analysis. The operationalization of concepts such as centralization, for example, will often appear very similar whether working with work groups, teams, divisions or organizations as the primary unit of analysis. Moreover, Ilgen et al's (2005) review of empirical and theoretical advances on work teams suggests that contingent-theoretic constructs could prove particularly useful for explaining team performance when team member interactions are viewed as knowledge sharing activities (Barry & Stewart, 1997; Hyatt & Ruddy, 1997; Mathieu et al., 2000; Marks et al., 2002; Engle, 2004). Understanding the interaction on information processing structures with knowledge sharing using a contingency perspective, then, seems to offer significant promise for explaining variance in team

performance, an enduring topic in the team literature (Levine & Moreland, 1990; Guzzo & Dickson, 1996; Ilgen et al., 2005; Stewart, 2006).

This is not to argue that the literature on team performance is without contingency-based theorizing; certainly contingency constructs have formed the basis of research designs and meta-analytical studies focused on teams over many decades (Priem, 1990; Ancona & Caldwell, 1992; Wiersema & Bantel, 1992; Beersma et al., 2003). Similarly, such studies are often collated into a family of contingency theories relevant to a particular concept, such as leadership (Yukl, 2001). However, as Hollenbeck et al (2002) assert, structural contingency theory (fitting team to task) is a promising, and underexplored, extension of traditional team literature notion of fitting individuals to their teams. For Hollenbeck et al. (2002), the power of structural contingency theory for understanding team performance is the refocusing theoretical emphasis from fitting persons to teams (Kristof, 1996) to fitting teams to tasks.

Contingency theorizing is a long-established tradition within organizational studies, but only recently has structural contingency theory and the concept of fitness functions been explicitly considered as proffering explanatory power for team performance (Hollenbeck et al. 2002; Ilgen et al. 2005). Concurrently, the importance of linking knowledge flows to work flows to improve performance at various levels of organization has been advanced in recent years (Nissen & Levitt, 2004; Looney & Nissen, 2006; Nissen, 2006; Nissen & Sengupta, 2006). However, the interactive effects of information processing structures and knowledge sharing on team performance are relative unknowns. This lack of understanding is particularly acute when the assigned tasks involve complexity and high levels of interaction among team members – precisely the context that the organizational and team literatures

suggest is emerging as the "fundamental reality" of knowledge economy work (Barley, 1996; Dunphy & Bryant, 1996; Harris & Harris, 1996; Leifer & Mills, 1996). The implications of exploring the relationships among information processing structures, knowledge flows and performance thus address a theoretical gap in the structural contingency, information processing, knowledge management and team performance literatures. Moreover, findings from such research promise to be informative to practitioners who manage information, knowledge, and work flows in a wide variety of organizational contexts.

2.3 Conceptual Framework

Mugenda (2008) defines conceptual framework as a concise description of the phenomenon under study accompanied by a graphical or visual depiction of the major variables of the study. Conceptual frameworks play an important role in understanding social phenomena and therefore can also play a role in policy research analysis. Conceptual frameworks can also be useful for understanding the nature of a policy problem, the important elements and relationships and the hidden assumptions embedded in the policy problem definition and solutions.

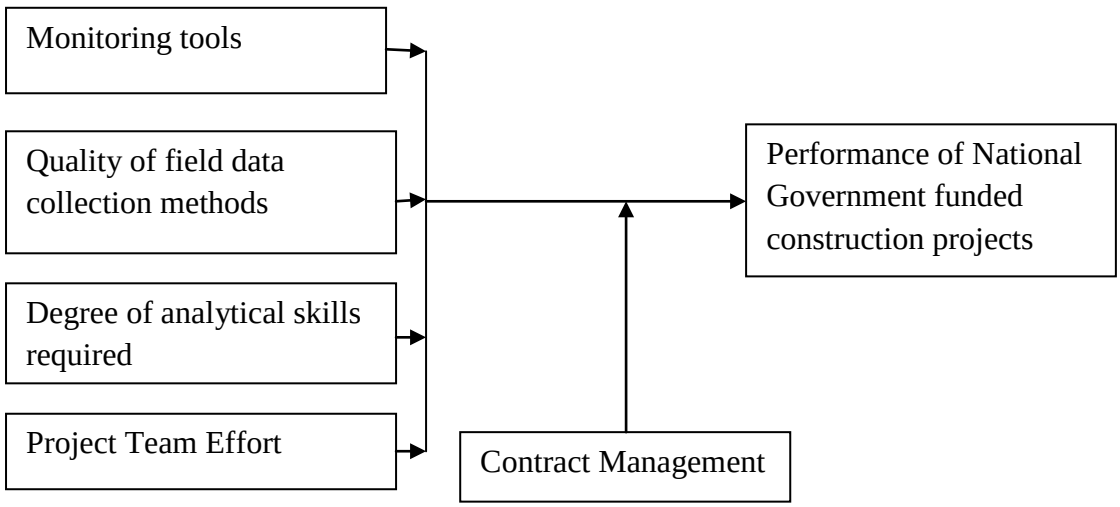

Figure 2.1: Conceptual Framework

2.4 Empirical Review

2.4.1 Influence of Monitoring Tools on Performance of Projects

Monitoring tools include: earned value management, variance analysis, project management softwares, and performance reviews**.**

Earned Value Management: According to Dwivedi (2006), EVM contributes to preventing scope creep, improving communication and visibility with stakeholders, reducing risk, profitability analysis, project forecasting, better accountability and performance tracking. He documents EVM as consists of the following primary data elements. Each data point value is based on the time or date an EVM measure is performed on the project. Budget At Completion (BAC) - Total cost of the project; Budgeted Cost for Work Scheduled (BCWS) / Planned Value (PV) - The amount expressed in Pounds (or hours) of work to be performed as per the schedule plan PV = BAC * % of planned work; Budgeted Cost for Work Performed (BCWP) / Earned Value (EV) - The amount expressed in Pounds (or hours) on the actual worked performed EV = BAC * % of Actual work; Actual Cost of Work Performed (ACWP) / Actual Cost (AC) - The sum of all costs (in Pounds) actually accrued for a task to date.

Earned Value is an approach where you monitor the project plan, actual work, and work-completed value to see if a project is on track. Earned Value shows how much of the budget and time should have been spent, with regard to the amount of work done so far. It requires the cost of work in progress to be quantified. This allows the project manager to compare how much work has been completed, against how much he expected to be completed at a given point.

The work of previous researchers shows that Earned Value Management is a better method of program/project management because it integrates cost, schedule and scope

and can be used to forecast future performance and project completion dates. It is an "early warning" program/project management tool that enables managers to identify and control problems before they become insurmountable. It allows projects to be managed better – on time, on budget. (Marshall, 2007)

Earned Value provides the project manager with an objective way of measuring performance and predicting future outcomes. This can enable him or her to report progress with greater confidence and highlight any overrun earlier. Nagrecha (2002). This in turn, enables the management team to make cost and time allocation decisions earlier than would otherwise be the case. It is true that past performance is a good indicator of future performance. Earned Value is a useful tool for predicting the outcome of projects in terms of time to completion, cost to completion and expected final costs.

Another tool is Project management software**,** which is a term covering many types of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration systems, which are used to deal with the complexity of large projects. Project Management Software for scheduling provides the ability to track planned dates versus actual dates and to forecast the effects of changes to the project schedule (Wideman, 2002).

Scheduling techniques include: arrow diagramming, logic networks, bar charts, PERT, trending, the use of a variety of software, and so on (Wideman, 2002). Stellman & Greene (2006) hold that the project schedule is the core of the project plan. It is used by the project manager to commit people to the project and show the organization how the work will be performed. Schedules are used to communicate

final deadlines and, in some cases, to determine resource needs. They are also used as a kind of checklist to make sure that every task necessary is performed. If a task is on the schedule, the team is committed to doing it. In other words, the project schedule is the means by which the project manager brings the team and the project under control. Gaebler (2011) documents that the project management software offers complete visibility over your projects.

A good software gives users granular insights regarding timelines, budgets and project assets. At the same time, project managers receive dashboard tools that let them see the big picture at a glance. The software provides tracking. According to Gaebler (2011), one of the most significant drawbacks of project management software is that it has the potential to complicate simple projects. If a project manager becomes so reliant on the application that it becomes a prerequisite for basic office functions, it could produce a work environment that is dominated by chaos and conflict. They also do not allow much room for flexibility, which is necessary in the real world. Projects will inevitably have delays that are out of your control, and you need to be able to make changes and tweaks as necessary. It may not suit all projects, it may be inconsistent with the type of project management method, it focuses primarily on the planning phase and does not offer enough functionality for project tracking, control and in particular plan-adjustment. It does not make a clear distinction between the planning phase and post planning phase, leading to user confusion and frustration when the software does not behave as expected (Uyttewaal, 2000).

Performance Review is another tool. There is need to regularly communicate status on assigned activities and work products to relevant stakeholders, identify and document significant issues and deviations from the plan, document change requests and

problems identified in any of the work products and processes and finally document the results of the reviews, track change requests and problem reports to closure. The measurement of performance is a tool for both effective management and process improvement. The selection of the right measures depends on a number of factors, including who will use them and what decision they support.

Desirable characteristics of performance measures as documented by (NYSOT, 2003) include: Measurable, objectively or subjectively; Reliable and consistent; Simple, unambiguous, and understandable; Verifiable; Timely; Minimally affected by external influence; Cost-effective; Meaningful to users; Relate to mission outcome; and Drive effective decisions and process improvement. Hatry (1999) documents that the effectiveness of performance measures is also influenced by how well they are integrated into a benchmarking system. Butteris (1999) holds that review of performance is an ongoing process, but managers should also schedule a formal process of review - either at the end of the year, the end of a project, or some other interval - to examine an individual's performance in relation to the expectations that were set at the beginning of the performance period. Ukion (2008) states that performance reviews are intended to check the progress of activities against the plan. Key components of an effective performance measurement system include these: Clearly defined, actionable, and measurable goals that cascade from organizational mission to management and program levels; Cascading performance measures that can be used to measure how well mission, management, and program goals are being met; Established baselines from which progress toward the attainment of goals can be measured; Accurate, repeatable, and verifiable data; and Feedback systems to support continuous improvement of an organization's processes, practices, and results (FFC, 2004).

The purpose of this activity is to: identify and document how the project performed in terms of the success criteria and key performance indicators established in the concept phase, evaluate the organisational processes and procedures used throughout the project, identify where problems occurred, and recommend improvements identify and explain any variance between the initial baseline plan, contract and schedule and their final versions, assess how well the individual management plans performed (risk, safety environment, and so on) and identify procedural modifications that would improve their performance and document the evaluation in a project completion report.

Another tool is Variance Analysis. Kerzner (2006) defines a variance as any schedule, technical; performance, or cost deviation from a specific plan. Variances must be tracked and reported. They should be mitigated through corrective actions and not eliminated through a baseline change unless there is a good reason. The cost variance compares deviations only from the budget and does not provide a measure of comparison between work scheduled and work accomplished. The scheduling variance provides a comparison between planned and actual performance but does not included costs. Suchan (2007) holds the view that to determine project variances, you need to have a starting point: this is your baseline. Two key baselines to establish before you can put variance tracking and reporting into play are cost and schedule.

2.4.2 Influence of Quality of Field Data Collection Methods on Performance of Projects

Evaluations are designed for various audiences, including funding agencies, policymakers in governmental and private agencies, project staff and clients, researchers in academic and applied settings, and various other stakeholders (Lofland

& Lofland, 1995). Experienced evaluators know that they often deal with skeptical audiences or stakeholders who seek to discredit findings that are too critical or not at all critical of a project's outcomes. For this reason, the evaluation methodology may be rejected as unsound or weak for a specific case. In most cases, decision-makers at the national level tend to favor quantitative information because these policymakers are accustomed to basing funding decisions on numbers and statistical indicators (Shadish, 1993).

On the other hand, many stakeholders in the educational community are often skeptical about statistics and "number crunching" and consider the richer data obtained through qualitative research to be more trustworthy and informative. A particular case in point is the use of traditional test results, a favorite outcome criterion for policymakers, school boards, and parents, but one that teachers and school administrators tend to discount as a poor tool for assessing true student learning (Miles & Huberman, 1994). For example, observation could be used for evaluation is situations such as; When you are trying to understand an ongoing process or situation. Through observation you can monitor or watch a process or situation that your are evaluating as it occurs; When you are gathering data on individual behaviors or interactions between people. Observation allows you to watch peoples' behaviors and interactions directly, or watch for the results of behaviors or interactions; when you need to know about a physical setting. Seeing the place or environment where something takes place can help increase your understanding of the event, activity, or situation you are evaluating. For example, you can observe whether a classroom or training facility is conducive to learning; when data collection from individuals is not a realistic option. If respondents are unwilling or unable to provide

data through questionnaires or interviews, observation is a method that requires little from the individuals for whom you need data (Kidder & Fine, 1987).

Qualitative methods, including in-depth interviewing, observations, and the use of focus groups, require good staff skills and considerable supervision to yield trustworthy data (Miles & Huberman, 1994). Some quantitative research methods can be mastered easily with the help of simple training manuals; this is true of small-scale, self-administered questionnaires in which most questions can be answered by yes/no checkmarks or selecting numbers on a simple scale. Large-scale, complex surveys, however, usually require more skilled personnel to design the instruments and to manage data collection and analysis (Kidder & Fine, 1987).

It is difficult to generalize about the relative costs of the two methods: much depends on the amount of information needed, quality standards followed for the data collection and the number of cases required for reliability and validity. A short survey based on a small number of cases (25-50) and consisting of a few “easy” questions would be inexpensive, but it also would provide only limited data. Even cheaper would be substituting a focus group session for a subset of 25-50 respondents; while this method might provide more “interesting” data, those data would be primarily useful for generating new hypotheses to be tested by more appropriate qualitative or quantitative methods. To obtain robust findings, the cost of data collection is bound to be high regardless of method (Atshuld & Witkin, 2000).

Similarly, data complexity and quality affect the time needed for data collection and analysis. Although technological innovations have shortened the time needed to process quantitative data, a good survey requires considerable time to create and pretest questions and to obtain high response rates. However, qualitative methods may be even more time consuming because data collection and data analysis overlap, and

the process encourages the exploration of new evaluation questions(Atshuld & Witkin, 2000). If insufficient time is allowed for evaluation, it may be necessary to curtail the amount of data to be collected or to cut short the analytic process, thereby limiting the value of the findings. For evaluations that operate under severe time constraints—for example, where budgetary decisions depend on the findings—choosing the best method can present a serious dilemma (Mile & Huberman, 1994). The evaluator should attempt to obtain the most useful information to answer the critical questions about the project and, in so doing, rely on a mixed-methods approach whenever possible.

Data collected through quantitative methods are often believed to yield more objective and accurate information because they were collected using standardized methods, can be replicated, and, unlike qualitative data, can be analyzed using sophisticated statistical techniques. In line with these arguments, traditional wisdom has held that qualitative methods are most suitable for formative evaluations, whereas summative evaluations require “hard” (quantitative) measures to judge the ultimate value of the project (Atshuld & Witkin, 2000). This distinction is too simplistic. Both approaches may or may not satisfy the canons of scientific rigor. Quantitative researchers are becoming increasingly aware that some of their data may not be accurate and valid, because the survey respondents may not understand the meaning of questions to which they respond, and because people’s recall of events is often faulty (Mile & Huberman, 1994). On the other hand, qualitative researchers have developed better techniques for classifying and analyzing large bodies of descriptive data. It is also increasingly recognized that all data collection-quantitative and qualitative-operates within a cultural context and is affected to some extent by the perceptions and beliefs of investigators and data collectors (Atshuld & Witkin, 2000).

Researchers and scholars differ about the respective merits of the two approaches, largely because of different views about the nature of knowledge and how knowledge is best acquired. Qualitative researchers feel that there is no objective social reality, and all knowledge is "constructed" by observers who are the product of traditions, beliefs, and the social and political environments within which they operate (Shadish, 1993). Quantitative researchers, who also have abandoned naive beliefs about striving for absolute and objective truth in research, continue to adhere to the scientific model and to develop increasingly sophisticated statistical techniques to measure social phenomena (Mile & Huberman, 1994). This distinction affects the nature of research designs. According to its most orthodox practitioners, qualitative research does not start with clearly specified research questions or hypotheses to be tested; instead, questions are formulated after open-ended field research has been completed (Lofland & Lofland, 1995) This approach is difficult for program and project evaluators to adopt, since specific questions about the effectiveness of interventions being evaluated are expected to guide the evaluation. Some researchers have suggested that a distinction be made between Qualitative work and qualitative work: Qualitative work (large Q) involves participant observation and ethnographic field work, whereas qualitative work (small q) refers to open-ended data collection methods such as indepth interviews embedded in structured research (Kidder and Fine, 1987).

To ignore the complexity of the background is to impoverish the evaluation. Similarly, when investigating human behavior and attitudes, it is most fruitful to use a variety of data collection methods. By using different sources and methods at various points in the evaluation process, the evaluation team can build on the strength of each type of data collection and minimize the weaknesses of any single approach. A multimethod approach to evaluation can increase both the validity and the reliability

of evaluation data. The range of possible benefits that carefully designed mixed-method designs can yield has been conceptualized by a number of evaluators. The validity of results can be strengthened by using more than one method to study the same phenomenon. This approach-called triangulation-is most often mentioned as the main advantage of the mixed-methods approach. Combining the two methods pays off in improved instrumentation for all data collection approaches and in sharpening the evaluator's understanding of findings (Atshuld & Witkin, 2000). A typical design might start out with a qualitative segment such as a focus group discussion alerting the evaluator to issues that should be explored in a survey of program participants, followed by the survey, which in turn is followed by indepth interviews to clarify some of the survey findings. It should be noted that triangulation, while very powerful when sources agree, can also pose problems for the analyst when different sources yield different, even contradictory information. There is no formula for resolving such conflicts, and the best advice is to consider disagreements in the context in which they emerge. Some suggestions for resolving differences are provided in Altshuld & Witkin (2000).

But this sequential approach is only one of several that evaluators might find useful. Thus, if an evaluator has identified subgroups of program participants or specific topics for which in-depth information is needed, a limited qualitative data collection can be initiated while a more broadbased survey is in progress. Mixed methods may also lead evaluators to modify or expand the adoption of data collection methods. This can occur when the use of mixed methods uncovers inconsistencies and discrepancies that should alert the evaluator to the need for re-examining data collection and analysis procedures (Atshuld & Witkin, 2000).

Effective data management plays an important role in improving organization's performance. Collecting, analyzing, interpreting, and acting on data for specific performance measures allows project managers to identify where systems are falling short, to make corrective adjustments, and to track outcomes. Quality measures are constructed using a variety of methods, including proportions, ratios, means, medians, and counts (Nonak et al, 2000). The method one chooses depends on which quality measures he or she has selected and which evaluation questions you are trying to answer (Nisses et al, 2004). A standardized data collection procedure is essential for successful quality improvement. A standardized data process will simplify the task of quality improvement by allowing one to collect accurate and consistent data and generate reliable information to act upon. The factors to consider when planning for data collection include: What information needs to be collected in order to address each quality measure? The data that one needs to collect will be influenced by the areas where you are seeking improvement and the measures you intend to use (Kelloggg et al, 2006).

As the types of questions differ, so will the kinds of data best suited for use in the evaluation of your program. What are the information sources? One must determine where to find the best source of data to answer each of your evaluation questions. Possible sources of data include people (example contractors, clients, or government institutions), records, or project related observations. How should information be collected (methodology)? Surveys, interviews, focus groups, literature reviews, and record analysis are just a few examples of data collection methods (Child, 2001). Registries have offered an important opportunity for tracking quality measures. There is often more than one way to collect data to answer a given question. Some questions are best answered by using more than one data collection method. For

example, you may want to do a chart review to understand practice patterns and then conduct interviews with a smaller number of providers to understand more detailed information about the observed practice patterns. How much data should be collected? It is not always necessary to collect all of the data available to you. If the data on the full population you are looking at is very large, evaluating a subset, or sample, may be sufficient.

On the other hand, if you are interested in using quality implementation reports to create "profiles", or snapshots of provider performance measures, and manage the performance of providers, then you may want comprehensive data (Kellogg et al, 2006). What timeline is being followed to meet task deadlines? The structure of your data capture timeline will depend on the resources available to you, as well as logistical program considerations. Before beginning data collection, it is helpful to determine how often data will be collected and what deadlines need to be met. It is a good idea to allow enough time for unforeseeable problems with the data capture process.

Regardless of the field of study or preference for defining data (quantitative, qualitative), accurate data collection is essential to maintaining the integrity of research (Child, 2001). Both the selection of appropriate data collection instruments (existing, modified, or newly developed) and clearly delineated instructions for their correct use reduce the likelihood of errors occurring. Consequences from improperly collected data include: inability to answer research questions accurately; inability to repeat and validate the study; distorted findings resulting in wasted resources; misleading other researchers to pursue fruitless avenues of investigation ; compromising decisions for public policy; and causing harm to human participants

and animal subjects (Nissen et al, 2004). While the degree of impact from faulty data collection may vary by discipline and the nature of investigation, there is the potential to cause disproportionate harm when these research results are used to support project recommendations (Nonaka et al, 2000).

2.4.3 Influence of Degree of Analytical Skills required on Performance of Projects

Analytical Skills could be defined as understanding a situation, issue, problem by breaking it into smaller pieces, or tracing the implications of a situation in a step-by-step way (Nonaka, 1994). Analytical Skills includes organizing the parts of a problem, situation in a systematic way; making systematic comparisons of different features or aspects; setting priorities on a rational basis; and identifying time sequences, causal relationships, or if-then relationships. It is the ability to visualize, articulate, conceptualize or solve both complex and uncomplicated problems by making decisions that are sensible given the available information (Keringer & Lee, 2000). Such skills include demonstration of the ability to apply logical thinking to breaking complex problems into their component parts (Keringer & Lee, 2000).

Skills development enhances both people's capacities to work and their opportunities at work, offering more scope for creativity and satisfaction at work. Success of a project depends ultimately on the number of personnel and how productive they are at work (Eppler & Sukowski, 2000). Available evidence firmly establishes that a combination of good education with training that is of good quality and is relevant to the labour market: empowers people to develop their full capacities and to seize employment and social opportunities; raises productivity, both of workers and of enterprises contributes to boosting future innovation and development; encourages

both domestic and foreign investment, and thus job growth, lowering unemployment and underemployment; leads to higher wages; when broadly accessible, expands labour market opportunities and reduces social inequalities (Epper & Sukiwski, 2000). There is considerable positive evidence linking educational attainment to organisational performance. For example the most productive manufacturing organisations tend to have a more highly educated workforce than the least productive equivalent on average, to an extra qualification level (Haskel & Hawkes, 2003). This kind of relationship has also been found in the US where it has been estimated that the equivalent of an extra year of schooling raised productivity by between 4.9 and 8.5 per cent in the manufacturing sector and between 5.9 and 12.7 per cent in services (Lynch & Black, 1995). These results have been supported by Mason and Wilson in 2003 for the UK.

A series of hugely influential and robust research projects has also strongly indicated a link between skills and business productivity. A number of well-known 'matched plant' studies (for example, Keep, Mayhew & Corney, 2002) by the National Institute for Economic and Social Research considered the impact of workforce skills and development on productivity alongside a range of other factors such as investment in capital equipment and maintenance practices for matched comparator establishments. A clear connection between higher skills and higher productivity was identified particularly at the intermediate skills level. All the studies found that the higher average levels of labour productivity in firms in continental Europe were closely related to the greater skills and knowledge of their work forces, especially intermediate skills. Skill levels were also shown to be associated with the uptake of new equipment and to maintenance activity. These studies mostly took place in the

mid to late 80s and early 90s but the findings have been replicated very recently (Mason & Wagner, 2002) with similar results.

Other studies have explored if there is a relationship between skills and other organizational outcomes. Haskel & Hawkes (2003) found that higher skill (qualification) levels support innovation and more sophisticated production processes and were associated with the production of higher quality products. Green et al (2003) has also found a strong relationship between different levels of UK workforce skills and the sophistication of products. An OECD study looked at innovation in UK SMEs and found that higher qualification levels of both managers and staff boosted innovation (Albaladejo & Romijn, 2001) and was associated with higher technological complexity and originality. Others have shown a link to company survival (Reid, 2000). These and other findings suggest that a more highly qualified and educated workforce is associated with greater productivity, greater innovation and higher quality products or services. An option therefore for employers is to instigate more rigorous and demanding recruitment standards to increase average education or qualifications. Raising skill levels through recruitment activity is one way in which employers can realize benefits but there are other ways and some research has looked specifically at the impact of training and development activity.

There is also evidence that training is associated with productivity improvements and softer benefits to organisations. Dearden, Reed & Van Reenen (2000) found connections between more training and higher labour productivity across a number of UK sectors. Others, like Collier et al. (2003), have found that increasing investment in training reduces the chance of firm closure. There is some evidence of benefits from training in terms of motivation and attitude; Booth & Zoega (2000) suggested that training fosters a common firm culture and helps attract good quality workers; Green

et al. (2000) found training had a downward impact on employee turnover, and recent work by IES has found that training and development opportunity is a significant driver of employee engagement (Robinson et al., 2004). A key question has been whether more education, training and skills is enough or whether training needs to be embedded in the strategic context of the organisation. Indeed there is evidence that training is most effective when there is a strategic association between training and development policy and business strategy (Keep et al., 2002; Thomson et al., 1997; Mabey & Thomson, 2001). It also seems to be the case that more extensive and formalised training is advantageous — off the job training appears to confer greater benefits to individuals and organisations (Lynch & Black, 1995; Bishop; 1994; Black & Lynch, 1996; Barrett & O'Connell in 1998 and in 2001). Individuals also benefit from training. Studies have indicated that training received from a current or previous employer brings wage benefits, improved promotability, and reduced likelihood of redundancy for the individual. (Blundell et al., 1999; Arulampolam, Booth & Elias, 1997; Blanchflower & Lynch, 1992).

The emerging evidence therefore is that training and development of the existing workforce has benefits for productivity and employee morale and engagement, and that this is most clearly realised when such development activity is linked to the business strategy of the organisation. Employers who raise the skills of their workforce through recruitment activity or though training and development reap benefits of productivity and other gains too. More generally, there is now a vast array of evidence that skills are just one element of the ways in which organisations invest in their people. They invest in their workforce in many other ways too, through pay systems, appraisal, communication mechanism. Human Resource practices have been

subject to considerable investigation to try and unpick whether they also contribute to organizational performance and in what ways.

The key messages emerging from the literature are that skills make a significant difference to firm performance and that skills can be enhanced through careful recruitment processes and through the training and development of the workforce. Skills also need to be embedded within an approach to managing people which both captures their motivation and enables them to apply themselves fully at work. Good management, good communication and meaningful jobs all have a part to play in turning the promise of skills into a reality (Fong et al., 2007).

As improving business performance is a key aim of most organisations, understanding what may make the difference is of enormous value to managers and leaders. There is now substantial evidence that investing in people is one way in which organisations can make positive gains in productivity and other business outcomes. Such human investment can have greater impact than investment in IT, in machinery, or in R&D. One of the most obvious forms of investment is in the skill levels of the workforce. The most productive manufacturing organisations tend to have a more highly educated workforce than the least productive -equivalent on average, to an extra qualification level (Haskel & Hawkes, 2003). This kind of relationship has also been found in the US where it has been estimated that the equivalent of an extra year of schooling raised productivity by between 4.9 and 8.5 per cent in the manufacturing sector and between 5.9 and 12.7 per cent in services (Lynch & Black, 1995). These results have been supported by Mason and Wilson in 2003 for the UK.

A series of hugely influential and robust research projects has also strongly indicated a link between skills and business productivity. A number of well-known ‘matched

plant' studies (see for example, Keep, Mayhew, Corney; 2002) by the National Institute for Economic and Social Research (NIESR) considered the impact of workforce skills and development on productivity alongside a range of other factors such as investment in capital equipment and maintenance practices for matched comparator establishments. A clear connection between higher skills and higher productivity was identified particularly at the intermediate skills level. All the studies found that the higher average levels of labour productivity in firms in continental Europe were closely related to the greater skills and knowledge of their workforces, especially intermediate skills. Skill levels were also shown to be associated with the uptake of new equipment and to maintenance activity. These studies mostly took place in the mid to late 80s and early 90s but the findings have been replicated very recently (Mason & Wagner, 2002) with similar results.

Other studies have explored if there is a relationship between skills and other organisational outcomes. Haskel & Hawkes (2003) found that higher skill (qualification) levels support innovation and more sophisticated production processes and were associated with the production of higher quality products. Green et al. (2003) has also found a strong relationship between different levels of UK workforce skills and the sophistication of products. An OECD study looked at innovation in UK SMEs and found that higher qualification levels of both managers and staff boosted innovation (Albaladejo & Romijn, 2001) and was associated with higher technological complexity and originality. Others have shown a link to company survival (Reid, 2000).

There is evidence that training is associated with productivity improvements and softer benefits to organisations. Dearden, Reed & Van Reenen (2000) found

connections between more training and higher labour productivity across a number of UK sectors. Others, for example Collier et al. (2003), have found that increasing investment in training reduces the chance of firm closure. There are other benefits too. There is some evidence of benefits from training in terms of motivation and attitude; Booth & Zoega (2000) suggested that training fosters a common firm culture and helps attract good quality workers; Green et al. (2000) found training had a downward impact on employee turnover, and recent work by IES has found that training and development opportunity is a significant driver of employee engagement (Robinson et al. 2004).

A key question has been whether more education, training and skills is enough or whether training needs to be embedded in the strategic context of the organisation. Indeed there is evidence that training is most effective when there is a strategic association between training and development policy and business strategy (Keep et al. 2002; Thomson et al. 1997; Mabey & Thomson, 2001). It also seems to be the case that more extensive and formalised training is advantageous — off the job training appears to confer greater benefits to individuals and organisations (Lynch & Black, 1995; Bishop; 1994; Black & Lynch, 1996; Barrett & O'Connell in 1998 and in 2001). Individuals also benefit from training. Studies have indicated that training received from a current or previous employer brings wage benefits, improved promotability, and reduced likelihood of redundancy for the individual. (Blundell et al., 1999; Arulampolam, Booth & Elias, 1997; Blanchflower & Lynch, 1992).

2.4.4 Influence of Project Team Effort on Performance of Projects

The Team is the basic structure of how projects, activities and tasks are being organized and managed within companies worldwide (Chan, 2001). Concept of a

"team" is described as a small number of people with complementary skills who are equally committed to a common purpose, goals, and working approach for which they hold themselves mutually accountable. It is important to notice that getting a group of people to work together (physically) is not enough to make this group of people into a "team". Teams are different from working groups. Martin and Hans (2001) indicated that importance of teamwork to success of innovative projects. They develop comprehensive concept of collaboration in teams, called teamwork quality. Six facets of teamwork quality construct were specified: communication, coordination, balance of member contribution, mutual support, effort, and cohesion. The result showed that teamwork quality was significantly associated with team performance as rated by team members, team leaders and team external managers. Furthermore, teamwork quality showed strong association with team members' personal success.

Global organizations striving for competitive advantage are increasingly incorporating the use of high-performance teams to deploy complex business strategies. Work done in teams provides many advantages and benefits. The major advantages are the diversity of knowledge, ideas and tools contributed by team members, and the camaraderie among members (Blundell et al., 1999; Arulampolam, Booth & Elias, 1997; Blanchflower & Lynch, 1992). A characteristic commonly seen in high-performance teams is cohesiveness, a measure of the attraction of the group to its members (and the resistance to leaving it). Those in highly cohesive teams will be more cooperative and effective in achieving the goals they set for themselves (Burt et al., 1994). Lack of cohesion within a team working environment is certain to affect team performance due to unnecessary stress and tension among coworkers. Therefore, cohesion in the work place could, in the long run, signify the rise or demise of the success of a company (Ilgen et al., 2005).

An effective team building process can bring significant, not simply marginal, improvements in project execution and results (Engle, 2004). Use of team building represents a “step change” in the way projects are managed and in the ultimate project performance. Successful use of the team building process will bring to the design/construction process significant and cost effective short-term and long-term benefits (Alinaitwe et al., 2007). The major motivation for using the team building process on the projects studied was to improve project results. Confusion can be reduced by distinguishing between the team building process and “partnering.” They are different forms of collaboration among owner, designer, and contractor even though the two terms often are used interchangeably. The successful use of project team building is independent of the specific type of commercial relationship that is used by the parties to the project (Mathieu et al., 2002).

Owners, designers, and contractors provided essentially similar responses to questions asked in this research. The costs of conducting the team building process are best thought of as a small investment that yields a high rate of return (Alinaitwe et al., 2007). Adversarial relationships among a project owner, designer and/or contractor are common but not inevitable. Previous experience with the team building process is not a precondition for having effective teams. Implementing the team building process is facilitated by the use of a consultant, either from inside or outside one of the involved organizations. There is no “one best way” to facilitate the team building process (Stewart, 2006). Different facilitating styles can lead to effective project teams. The team building process is not a management panacea, but is one technique that, if effectively applied, can contribute important benefits (Nisses & Sengupta, 2006).

High-performance teams are what make companies successful. Whether the task is to create an innovative product or service, or to design a new process or system, teams rather than individuals are assuming more of the load than ever before (Ilgen et al., 2005). The ideal team combines individual talents and skills into one super-performing-whole with capabilities that surpass those of even its most talented member. High-functioning teams are not the result of coincidence. They achieve greater levels of participation and collaboration because their members trust one another, share a strong sense of team identity, and have confidence in their abilities and effectiveness (Nissen & Sengupta, 2006).

High-performance work teams are generally composed of a combination of purpose and goals, talent, skills, performance ethics, incentives and motivation, efficacy, leadership, conflict, communication, power and empowerment, and norms and standards (Engle, 2004). Team purpose, goals and roles: High-performing teams are synergistic social entities that work toward the achievement of a common goal or goals-short term and long term. They often exemplify a total commitment to the work and to each other. Team members do better work when their roles are clear: They know how to do their jobs and why they are doing them (Beam & Myra, 2012). Each member must understand and support the meaning and value of the team's mission and vision. Clarifying the purpose and tying it to each person's role and responsibilities enhances team potential, as does the inclusion of "stretch" goals that increase the challenge necessary to motivate team members.

High-performance teams begin by recruiting and retaining their best talent, while quickly helping low-performing members find other places to work (Alinaitwe et al., 2007). Morale typically increases as performance increases. After selecting for talent,

it is critical to ensure that the team members possess complementary skills (technical, problem-solving, decision-making and interpersonal skills). Team members must exhibit a sustained commitment to performance excellence, exercise candor and mutual respect, and hold themselves and their organizations accountable at both the individual and team levels. Incentives, motivation and efficacy: Both monetary and nonmonetary systems that encourage high performance have a positive impact on tactical implementation of the team's goals. Over the long term, intrinsic motivators such as personal satisfaction at work and working on interesting projects provide the greatest impact on performance (Burt et al., 1994). In addition, a belief in one's self and abilities encourages people to take more strategic risks to achieve team goals. Leadership: High-performing leaders generally accompany high-performance work teams. Essential leadership qualities include the ability to a) keep the purpose, goals and approach relevant and meaningful; b) build commitment and confidence; c) ensure that team members constantly enhance their skills; d) manage relationships from the outside with a focus on the removal of obstacles that might hinder group performance; e) provide opportunities for others without seeking credit; and f) get in the trenches and do the real work required.

There is widespread agreement that effective team leaders focus on purpose, goals, relationships and an unwavering commitment to results that benefit the organization and each individual Conflict and communication: Conflict management is an essential part of becoming a high-performance team. Open communication in such teams means a focus on coaching instead of on directing and a focus on the ability to immediately address issues openly and candidly. The key to team performance is open lines of communication at all times to provide motivation, maintain interest and promote cooperation. Power and empowerment: Empowered work teams increase

ownership, provide an opportunity to develop new skills, boost interest in the project and facilitate decision-making.

Researchers refer to the ideal situation as being “loose-tight” such that specific decision-making boundaries are constructed with enough room for individuals to make empowered choices. Norms and standards: Like rules that govern group behavior, norms can be helpful in improving team development and performance (Schoonhoven, 1981). Norms for high-performance teams include open lines of communication, early resolution of conflict, regular evaluation of both individual and team performance, high levels of respect among members, a cohesive and supportive team environment, a strong work ethic that focuses on results, and shared recognition of team successes. The key is that high-performing teams actually discuss and agree to their operating rules standards that each team member agrees to uphold and for which they hold each other accountable (Stewart, 2006). There are four key reasons why teams work: A group of individuals bring complementary skills and experience that exceed the abilities of any single individual; teams support real-time problem-solving and are more flexible and responsive to changing demands; teams provide a unique social dimension that enhances the economic and administrative aspects of work; and a high-performance teams generally have more fun at work than other low-achieving teams or individuals (Engle, 2004).

The effort that team members exert on their common task influences the success of the project (Hackman 1987). This proposition reflects the fundamental assumption that, independent of other factors such as task-relevant knowledge and skills, the level of effort brought to bear on a task influences performance. A study by Weingart (1992) provides support for this proposition at the team level of analysis.

2.4.5 Influence of Contract Management on Performance of Projects

Poor contract could be attributed to the manner in which contracts are awarded. In most cases projects are awarded to the lowest bidder (Mansfield, Ugwu, & Doran, 1994). Some of these low bidders may lack management skills and have less regard for contract plans, cost control, over all site management and resource allocation. As we know in the case of Nigeria, contracts are usually awarded to politicians and well connected individuals irrespective of the apparent deficiencies in their relevant delivery potentials. Accordingly, Frimpong et al. (2003) observed that most contractors in Sub – Saharan African are entrepreneurs who are in the business of making money at the expense of good Management. Consequently, they pay low wages, submit very low bids and have very little, if any ability to plan and coordinate contracts. Cleland & Bidanda (2009) have stated that in a highly connected and competitive world, most projects must function in an environment that interacts with joint ventures, alliances, multinational sourcing, sub-contractors, and intricate vendor relations. Relationships with external organizations are managed through contracts.

In general, companies provide services or products based on the results of direct contract negotiations with the client. One of the most important factors in preparing a proposal and estimating the cost and profit of a project is the type of contract expected. The confidence by which a bid is prepared is usually dependent on how much risk the contractor will incur the contract. Certain types of contracts provide relief for the contractor since onerous risks exist (Kerzner, 2009). He further states that the size and experience of staff, urgency of completion, availability of qualified contractors, and other factors must be evaluated carefully during contract negotiations. The advantages and disadvantages of all basic contractual arrangements must be recognized to select the optimum arrangement for a particular project.

According to Project Management Institute (2013), all legal contractual relationships generally fall into one of two broad families: either fixed-price or cost reimbursable. There is a third hybrid type commonly in use called time and materials contract. The fixed-price contract type is recommended, although some projects also prepare team contracts to define ground rules for the project. However, in practice it is not unusual to combine one or more types into a single contract document. Once the contract has been signed, both parties must meet their obligations under the contract.

The contract administrator is responsible for compliance by the contractor to the buyer's contractual terms and conditions and to make sure that the final product of the project meets requirements. Project Management Institute (2013) further states that under fixed-price arrangement, buyers need to precisely specify the product or service being procured since changes in scope may only be accepted with an increase in contract price. Kerzner (2009) argues that although a contract administrator is a member of the project team for reporting purposes, the contractor administrator could report to a line function such as legal department and may even be an attorney. In later stages of the project, a contract administrator is responsible for verification that all the work performed and deliverables produced are acceptable to the buyer. Contractual closure is then followed up with administrative project closure of the project or phase.

Important work by Pryke (2006) treated projects as a network of relationships that need managing to achieve project success. In the construction sector, a number of studies have identified the importance of managing the interrelationships between parties within a project. Studies focusing on organizing projects as temporary multiparty organizations in the 1980s came from Bresnen (1988) in the United Kingdom, and from Packendorff (1995) in Europe. Brensen and Marshall (2000)

further looked at partnering within the construction industry. A key issue remained of how to embed partnering relationship into the contract.

The use of the contract form to govern the relationship and resolve conflicts among the contracting parties has been explored by various parties such as Lazar (2000), and Cicmil & Marshall (2005) but with no specific contractual devices developed Performance is what results from a team reaching the objectives of the outsourced project. In outsourcing as with any other project context, project performance can be measured as the extent to which a project is completed in time, within budget, and demonstrates a quality that satisfies customer requirements (Kerzner, 2009). The subject of project success is at the heart of project management. Project Management Institute (2013) has stated that the project manager is responsible and accountable for setting realistic and achievable boundaries for the project and to accomplish the project within the approved baselines. Many factors impact the degree of success in outsourced projects.

In this study, performance of outsourced projects was deemed to be influenced by contract management. A wide range of performance indicators such as operational, financial, behavioural, and attitudinal outcomes have been applied to investigate the added value of teams in organizations (Delarue et al., 2004). However, since outsourced projects always have a specific performance outcome, this study adhered to Hackman's (1987) concept of performance being the degree to which a team meets its goals, and how well its output fulfils project objectives. The study was interested in perceptions of the general work performance of outsourced project teams in medium manufacturing enterprises.

2.5 Critics of Existing Literature

A vast literature has been created to discuss performance issues in project management setting. Researchers have greatly looked at the variable in details. Examples include factors influencing the effective implementation of community projects (Odoyo, 2013); factors affecting the performance of construction project in the Gaza strip (Enshassi et al., 2009), factors influencing successful completion of road projects in Kenya (Ondari, 2013), factors influencing the effectiveness of implementation of the economic stimulus programme (esp), the case of construction projects in Nairobi County, Kenya (Kogi, 2013), preparedness of secondary school management in the planning, supervision, monitoring and evaluation of school projects in Gucha District, Kenya (wanjala, khatete, Mbaka & Asiago, 2014). These studies reveal that performance of construction projects is influenced by various factors. However, not much study has been done to look into how monitoring and evaluation factors influence the performance of construction projects in the Kenya. Similarly a large number of literatures are written from a different cultural context as compared to the local culture under study. Due to the fact that various countries and firms have different unique characteristics and specific conditions, this study fills the gap. Kenya is still a developing country and most of the structures have not been put in place, meaning that some of the ways proposed by some of the scholars to be the way forward may not work. Some of these unique environmental factors that face a country like Kenya have not been studied keenly. Literature has not considered the variations of the different cultures exhibited by people who bring the same to the firms (people who influence culture in an organization).

2.6 Summary of Existing Literature

Several theories related to the issue were identified in the literature review. These theories include: theory of change, information processing theory, knowledge flow theory, and structural contingency theory. The review established that project performance is a widely researched subject. However, a large number of these studies are written from a different cultural context as compared to the local culture under study.

Several studies have been done surrounding the aspects of construction projects. There are critical factors that contribute to the effectiveness of implementation of construction projects. Organizational structure, finance, contract management and labor influence project delays (Kimani, 2014). The influence on effective implementation of projects as have been discussed by different researchers include: poor performance due to designs and documentation, defects in designs, need for adequate and accurate drawings and specifications and realistic and detailed cost estimates (Aftab, 2012; Oyewobi, 2012; Martin, 2004; Gahlot, 2004).

From previous studies it has established that selection of the most appropriate contractor influences the implementation of construction project. Olabosipo (2011) refers to past experience in terms of size and type of project; Arnold (1999) says short listing of suitable contractors and Mike (1998) refers to assessing capacity and relevant experience. Project funding levels has been identified as contributing factor to effectiveness in implementation of projects. Tawil (2013) says insufficient funding affects projects while Aftab (2012) refers to delays in payments for valuations of works done negatively impacts on projects implementation. Project cost control is very important as was observed by Joseph (2010) who talks of the need to develop

specific cost control plan for each project. Chitkara (2009) says a master control estimate as well as control tools should be employed in projects in order to enhance project implementation effectiveness. Theodore (2009) says that project scheduling is crucial and estimation of the time required to construct the project should be done. Miklos' (1997) says a schedule is a plan with sequence of operation and list of resources as well as project scheduling techniques.

2.7 Research Gaps

A number of studies have been undertaken on various aspects of construction industry. However, review of related literature reveal that this has been undertaken in other parts of the world with little evidence of similar study as far as the local scene is concerned. As was noted in the introduction, the construction industry contributes significantly to the growth and development of any given economy in the world hence the need for evaluation as well as careful monitoring in its performance. Many construction projects continue to experience cost overruns, extensions and revisions in completion dates while others end up stalling completely. As a consequence, the country loses a lot of much needed financial resources which would be utilized elsewhere if the projects were implemented successfully. There is a need to critically examine the monitoring and evaluation factors that influence effectiveness performance of construction projects hence the study of the case of Government funded construction projects, Uasin Gishu County, Kenya so that the challenges of stalled construction projects can be addressed adequately.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

The aim of the study was to analyze the influence of monitoring and evaluation on the performance of national government funded construction projects in Uasin Gishu County, Kenya. This chapter outlines the methodology to be used to achieve research objectives. It was organized to cover sections on research design adopted by the study, target population, sample size and sampling techniques, data collection instruments and procedure, pilot test of instruments, data processing and analysis, data reliability and viability, presentation of research findings, and finally conclusion. Each of these sections was discussed in relation to research objectives and hypothesis that the research will test.

3.2 Research Design

The study employed a descriptive survey research design to establish Influence of Monitoring and Evaluation factors in the performance of national government funded construction projects in Uasin Gishu County, Kenya. The design sought to capture both qualitative and quantitative aspects of the study (Zikmund, Babin, Carr & Griffin, 2009). Descriptive survey design is considered the best as the study had specific variables that it sought answers. The study sought to describe the identified variables as they are without manipulation of variables. The major purpose of descriptive research is description of the state of affairs, as it exists without manipulation of variables (Kombo & Tromp, 2006).

3.3 Target Population

A population is defined as a complete set of individuals, cases or objects with some common observable characteristics (Mugenda & Mugenda, 2003). Dencombe (2007)

defines a population frame as “an objective list of the population from which the researcher can make his or her selection.” A population frame must thus contain an up-to-date list of all those that comprise the target population. The study targeted all the National Government funded Construction Projects in Uasin Gishu County, Kenya designed and implemented under the Supervision of Ministry of Public Works between June 2014 and June 2016. According to the Ministry of Public Works, there were two hundred and fifteen (215) of such projects. Key respondents included clients, consultants, contractors, and ministry of public works supervisors.

Table 3.1: Target Population

Project department	**Target Population**	**Percentage**
Public Primary Schools	20	9.3
Public Secondary Schools	110	51.2
Rural Polytechnics	5	2.3
Public Colleges/Polytechnics	2	0.9
Public Hospitals/Health centers	22	10.2
Public Universities	2	0.9
Public Security Agency Institutions	10	4.7
Government Parastatals	7	3.3
Market Shades	5	2.3
Jua Kali Shade	2	0.9
Government Buildings	6	2.8
Social Amenities	1	0.5
Fish Ponds/Hatchery	2	0.9
Generator House	5	2.3
Sewer line Construction	8	3.7
Flood Lights (High mast)	4	1.9
CCTV Cameras	4	1.9
TOTAL	**215**	**100**

Source: Ministry of Public Works Office – Eldoret (2016)

3.4 Sample Size and Sampling Technique

Sampling is the act, process or technique of selecting a suitable sample or a representative part of a population for the determining parameters or characteristics of the whole population (Mugenda & Mugenda, 2003).

3.4.1 Sample Size

A sample is the segment of the population that is selected for investigation. It is also small group taken from a larger population composed of members being studied (Bryman, 2012; Maximiano,

2007). The research used Krejcie & Morgan (1970) table of determining sample size from the population as shown in Appendix 5. With a confidence level of 95%, and a margin of error of 5% and a target population of two hundred and fifteen (215) projects, the table gave a sample size of One hundred and thirty four (134) National Government funded construction projects in Uasin Gishu County, Kenya designed and implemented under the Supervision of Ministry of Public Works between June 2014 and June 2016. .

3.4.2 Sampling Techniques

Simple Random sampling technique was adopted in this research study to select respondents from the One hundred and thirty four (134) National Government funded construction projects. The construction projects in the different ministries formed strata, the sample size of the one hundred and thirty four and were selected as shown in Table 3.2.

Table 3.2: Sample Population

Project department	Sample Population	Percentage
Public Primary Schools	12	9.3
Public Secondary Schools	69	51.2
Rural Polytechnics	3	2.3
Public Colleges/Polytechnics	1	0.9
Public Hospitals/Health centers	14	10.2
Public Universities	1	0.9
Public Security Agency Institutions	6	4.7
Government Parastatal	4	3.3
Market Shades	3	2.3
Jua Kali Shades	1	0.9
Government Buildings	4	2.8
Social Amenities	1	0.5
Fish Ponds/Hatchery	1	0.9
Generator House	3	2.3
Sewer line Construction	5	3.7
Flood Lights (High mast)	3	1.9
CCTV Cameras	3	1.9
TOTAL	**134**	**100**

3.5 Data Collection Procedure

The researcher sought permission to conduct the research in the organizations. On appropriate date, the researcher administered questionnaires on agreement with the respondent using drop and pick method where the researcher approached potential participants in persons, explained the study to them, left the questionnaire, and picked it at an agreed date. There was an introductory note to let the respondent feel free to participate. Questions that were not clear to the respondent were clarified. The drop and pick method was preferred because it increased response rate by adding a personal appeal to the data collection process (Bryman & Bell, 2015).

The researcher ensured that the questionnaires are received at the right time and that everything was clarified clearly to the respondents before they responded to the items in the questionnaire. Prior to this, the researcher liaised with the relevant authorities to allow the study to be carried out and conducted a pilot study to familiarize with the respondents. A period of one month was given to the respondents to answer the questions. Contact mobile number and e-mail address of the researcher was also given to the respondent.

3.5.1 Research Instruments

Questionnaire was the research instrument, and incorporated both open-ended and closed-ended questions. According to Cooper & Emory (2008), the questionnaire is conveniently used because it is cheaper and quicker to administer, it is above researcher's effect and variability, and is highly convenient for the respondents as they can fill them during free times or when workloads are manageable. According to Mugenda & Mugenda (2003), the questionnaire allows the researcher to collect information from a large sample with diverse background; the findings remain confidential, save time and since they are presented in paper format there is no opportunity for bias. The data received from questionnaires is appropriate and can easily be arranged and analyzed (Bachman, 2000). Self-administered questionnaire is the only way to elicit self-reports on people's opinion, attitudes, beliefs and values (Sproul, 1998). The instrument incorporated Likert scales to measure perception, attitude, values and behavior. Likert (1932) scale are also easy to administer because each item is followed by an alternative answers and is economical.

3.6 Piloting of Instruments

A pilot study was conducted due to the importance and need to detect and determine weaknesses in the instrument that was to be applied in the research study. The

researcher used colleagues and respondents to evaluate and refine the measuring instrument. Gathered proposed suggestions for amendments and adjustments were made to produce an instrument for use in the field. In order to establish face validity of the questionnaire, it was subjected to pretest by carrying out survey of 15 respondents in Uasin Gishu County, Kenya who were similar to the final study respondents, which is 11.19% which is greater than 10% as recommended by Weiser (2007).

3.6.1 Reliability of Instrument

This refers to the extent to which data collection techniques and analysis will yield similar findings by other observers. The measurement of reliability provides consistency in the measurement of variables. Internal consistency reliability is the most commonly used psychometric measure for assessing survey instrument and scales (Zhang, Waszink & Wijngaard, 2000). Cronbach alpha (α) is the basic formula for determining the reliability based on internal consistency (Kim & Cha, 2002). The standard minimum value of alpha (α) is 0.7 recommended by Nunally (1975) and Malhotra (2004). Construct used in this study was tested for internal consistency reliability where values greater than 0.7 indicated presence of a strong internal consistency in the measurement. Table 3.3 produced a Cronbach alpha (α) values greater than 0.7, indicating that the questionnaire is reliable as recommended by Fraenkel & Wallen (2000).

Table 3.3: Reliability Test

Study Variable	Number of Test	Cronbach Alpha
Monitoring Tools	7	0.785
Quality of field data collection Methods	8	0.801
Degree of analytical skills required	7	0.724
Project team effort	8	0.756
Contract management	9	0.777
Performance of national government funded construction projects	7	0.793

3.6.2 Test of Construct Validity

Validity is concerned with whether the finding will really be about strategic e-commerce adoptive performance. To be able to do this, a factor analysis was conducted in order to develop factors that would help in explaining the influence of monitoring and evaluation on the performance of national government construction projects in Uasin Gishu County, Kenya. The principle axis factoring method with varimax rotation was performed on the questions to ensure good constructs validity. Previous studies by Tan et al. (2009) used the same method which has been widely accepted as a reliable factor analysis (Alexander & Colgate, 2000). A loading of 0.3 and above was used as argued by other researcher such as Hair, Anderson, Tathan & Black (1998), Norman & Streiner (1994). Extraction was done by specifying four factors to be extracted since the study involved four independent variables as advocated by Field (2005).

Validity is the extent to which differences found with a measuring tool reflect true differences among respondents being tested. The purpose of validity in the study was to seek relevant evidence that confirms the answers found with the measurement device which is the nature of the problem. The validity of the instruments was ensured through constructive criticism from the project supervisors who have

extensive experience and expertise in questionnaire. The items were revised and improved according to the supervisors' advice and suggestions. On the other hand reliability of the instrument was improved through pre-testing. Pre-testing involved relying on colleagues, respondents' surrogates or actual respondents to refine measuring instrument reliability. It was done in order to limit the distorting effects of random efforts on the findings.

3.7 Data Processing and Analysis

Data analysis helped the researcher in interpreting data, drawing conclusions and making decisions. Data from questionnaires was summarized, edited, coded, tabulated and analyzed. Editing was done to improve the quality of data for coding. Editing involved going through the questionnaires to see if respondents responded to questions and see if there are blank responses.

Tabulation involved counting the number of cases that fall into various categories. A simple tabulation was used. Data analysis was done using (SPSS) Statistical Package for Social Sciences. Qualitative data was analyzed by coding according to variables in the study. Quantitative data was analyzed through the use of descriptive statistics and the results then presented in form of tables.

3.7.1 Quantitative data analysis

The collected data was edited for accuracy, usefulness and completeness, and then analyzed using Statistical Package for Social Science (SPSS) version 20 and the results presented in tables. The data was analyzed using descriptive statistics and multiple linear regression techniques. According to Waiers (2007) descriptive statistics focus on describing main features of given data set in order to establish pattern and trends. The regression model tested was depicted as follows:-

$Y= \beta_0 +\beta_1X_1+ \beta_2X_2+ \beta_3X_3+ \beta_4X_4+ \beta_5X_5+\varepsilon$

Where:

X_1 = Influence of quality of field data collection methods

X_2 = Influence of degree of analytical skills required

X_3 =Influence of Project Team effort

X_4 =Influence of Contract Management

ε = Error term assumed to have zero mean and independent across time period

β_0 =Value of intercept

β_1 =coefficient for monitoring tools

β_2 =coefficient for quality of field data collection methods

β_3 =coefficient for degree of analytical skills required

β_4 =coefficient for project team effort

β_5 =coefficient for contract management

Further the study tested hypothesis using P-value approach at 95% level of significance (0.05). The decision rule was to reject the null hypothesis

CHAPTER FOUR
DATA ANALYSIS, INTERPRETATION, AND PRESENTATION

4.1 Introduction

According to Mugenda & Mugenda (2003), this chapter deals with the data analysis, presentation and interpretation. The data used was obtained from questionnaires distributed to the clients, contractors, consultants, and ministry of public works supervisors. The main objective of this study was to explore the influence of monitoring and evaluation on the performance of national government funded construction projects in Uasin Gishu County, Kenya. The types of statistics used to achieve this objective were correlation to show relationships and descriptive statistics such as measures of central tendencies, frequency distribution, percentages, and charts were used to establish the various factors.

4.2 Response Rate

Out of 134 questionnaires that were distributed to potential respondents, 97 were duly filled and returned to the researcher. This translates to a response rate of 72.39%

Table 4.1: Response Rate

	Frequency	**Percentage**
Response	97	72.39
Non Response	37	27.61
Total	**134**	**100**

The response rate was found to be sufficiently adequate for analysis and for discussions of the study findings when compared to other results in the construction industry by Aftab (2010) – 71.11%, Abdullah (2011) – 82.2% and Haseeb (2011) – 60%. The unreturned questionnaire (27.61%) could be attributed to delay on the part of the respondent completing and hence being unable to return by July, 2016.

According to Mugenda & Mugenda (2003), any response rate of above 30% is sufficient to facilitate statistical analysis.

4.3 Demographic Characteristics of the Sample

The profile of respondents identifies the main information about the characteristics of those who participated in the research process depending on the relevance of the information sought. The researcher sought to find out the distribution of the respondents according to gender, age bracket, and education level. The aim was to deduce any trend from the respondent's profile that was directly linked to the variables of the study. Similarly, previous studies have noted some relationship between these demographics factors and project performance (Waithera & Wanyoike, 2015). According to Sifer, Puddy, Warren and Robert, 2002, the analysis of demographic characteristics traits of the sample helps the researcher to and research consumer to make conclusion regarding the representativeness of the sample, consequently, the generalizability of the collected data.

4.3.1 Gender of the Respondents

The study sought to establish gender of the respondents so as to establish on the criteria used by the management in employing employees on gender consideration. Gender is a cross-cutting issue within the development policies of most international donors and national governments. If gender impacts are not evaluated, they are unlikely to be given any attention.

Table 4.2: Distribution of Respondents by their Gender

		Frequency	**Percent**
Valid	Male	61	62.5
	Female	36	37.5
	Total	**97**	**100.0**

As table 4.2 indicates, 62.5% of the respondents were male while women made up of the remaining 37.5%. This finding is consistent with the finding that women are underrepresented in the skilled workforce of the Malaysian construction industry (Majid, Yusoff, & Razak, 2015). Masanja (2010) also found that there was low women participation in science, technology, and mathematics, education and employment in Africa. Similarly, the study of Zaherawati (2010) in which all the respondents were of the male gender. AusAID (2002) noted that the degree to which gender is monitored in AusAID-funded activities appears to be influenced by the following: The extent to which gender is specified in the design documents, logframes, or gender strategies; The interest of program staff in gender principles and the extent to which they have a sound understanding of the importance of achieving gender and development outcomes; The degree to which gender issues and strategies have been articulated in the program, regional, or sector strategy.

4.3.2 Age of the Participants

The researcher found it paramount to establish the age bracket of the respondent. This is a demographic feature that affects behaviors or perception of an individual on issues in organizations. This is because the younger and the mature persons tend to understand given concepts and are more active as opposed to old people.

Table 4.3: Distribution of Respondents by their Age Group

		Frequency	**Percent**
Valid	Below 30 years	6	6.3
	30-39 years	49	50.0
	40-49 years	30	31.3
	Above 50 years	12	12.5
	Total	**97**	**100.0**

The finding in table 4.3 shows that 6.3% of the respondents are below 30 years, 50% of them are between 30-39 years, 31.3% of them are aged between 40-49 years, and 12.5% are 50 years and above. It was observed that the majority of the respondents were aged between 30 and 39 years. The distribution matches expectation since the study targeted contractors, supervisors from the ministry of public works, project clients and consultants. Ameh (2011) and Kogi (2013) studies made similar observations whereby 91% of the respondents were within 30 - 49 years of age.

4.3.3 Education level of the Respondents

The study sought to establish the academic level of the respondents. The respondents were asked to state their highest academic level. The level of education is a key factor when it comes to understanding and perception of issues in an organization. According to Murphy & Myors (2004), education level determines the respondents' ability to comprehend the survey questions.

The results were tabulated as indicated in table 4.4 below.

Table 4.4: Distribution of Respondents by their highest level of education

		Frequency	**Percent**
Valid	Primary	6	6.3
	Secondary	6	6.3
	University	85	87.5
	Total	**97**	**100.0**

The findings in the table 4.4 shows that 6.3% of the respondent reached primary school as their highest level of education, 6.3% of the respondents have secondary level as their highest level of education, 87.5% at university level. This is consistent with Ameh (2011) study who observed that 67 % of the respondents had a first degree

or its equivalent. This shows that the respondents are capable and reliable to explore the underpinning issues related to the study.

4.3.4 How long the organization is considered to have been implementing national government funded construction projects

The study sought to establish how long the organizations have carried out national funded construction projects. The respondents were asked to state how long the organization is considered to have been implementing the projects. The results were tabulated as indicated in table 4.5 below.

Table 4.5: How long the organization is considered to have been implementing national government funded construction projects

		Frequency	Percent
Valid	1-2 years	6	6.25
	5 years and above	91	93.75
	Total	**97**	**100.00**

The findings in the table 4.5 shows that 6.25% of organizations have been implementing the projects for a period between 1-2 years, 93.75% of organizations have been implementing the projects for a period of five years and above. This is an indication that the majority of respondents are more familiar with the nature of performance of projects and challenges thereof in the organizations, hence able to provide the accurate information based on experience.

4.3.5 Whether they have monitoring and evaluation process for projects in the organization

The study sought whether the organizations have monitoring and evaluation activities carried out. The respondents were asked to state whether they have monitoring and evaluation processes for projects in their organization. The results were tabulated as indicated in table 4.6 below.

Table 4.6: Showing whether they have monitoring and evaluation process for projects in the organization

		Frequency	Percent
Valid	Yes	91	93.8
	No	6	6.3
	Total	**97**	**100.0**

The findings in the table 4.6 shows that, 93.8% of organizations have monitoring and evaluation being carried out in their construction projects; 6.3% have no monitoring and evaluation for their national government funded construction projects. This is an indication that the majority of national government funded construction projects undergoes monitoring and evaluation in Uasin Gishu. However the study reveals that 6.3% of national government funded construction projects are not subjected to monitoring and evaluation. This finding is congruent with the findings of Karanja (2014): most youth projects are evaluated twice a year. However, frequency of evaluation activities need to be increased to give these youth groups proper feedback and advice. Sanginga (2013) also found evidence of monitoring and evaluation in CDF projects but questioned the quality of the M&E practices. According to Kamau & Mohamed (2015), these projects usually undergo the necessary M & E processes which are often a requirement of the law. The study pointed out that M&E activities were conducted as part of regulatory requirement rather than being conducted with a focus on improving the project delivery process. The respondents mentioned monitoring and evaluation team, officers in charge, quality control department and project management, project management team, monitoring and evaluation committee headed by the chair, consultants, monitoring and evaluation officers, government officers, friends of the institution, project committee, project managers, as those who carry monitoring and evaluation procedures in their institution.

4.4 Descriptive Analysis

Descriptive analysis focuses on describing and summarizing the basic feature of the data in a given study (Cooper & Schindler, 2013). In this section, descriptive statistics are used to summarize data regarding monitoring and evaluation influence on national government funded construction projects.

4.4.1 Descriptive Analysis of whether the use of monitoring tools improved project activities

The study sought to test whether there was influence of monitoring tools in the projects. The respondents were asked to state whether the use monitoring tools improved project activities. The results were tabulated as indicated in table 4.7 below.

Table 4.7: Descriptive Statistics for whether the use of monitoring tools improved project activities

	N	Minimum	Maximum	Mean	Std. Deviation
Monitoring project plan, actual plan, actual work, and work complete value to see if the project is on track	97	1	5	4.0625	1.06262
Tracking of variance from specific plans	97	1	5	3.5000	1.03280
Performance review	97	1	5	3.6875	1.25000
Project Management Analysis	97	1	5	3.4375	1.36473
Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system	97	1	5	4.0000	1.09545
Valid N (listwise)	97				

The findings in the table 4.7 shows that, Monitoring project plan, actual plan, actual work, and work complete value to see if the project is on track with a mean of 4.0625 and standard deviation of 1.06262, Tracking of variance from specific plans with a mean of 3.5 and standard deviation of 1.03280, performance review with a mean of 3.6875 and standard deviation of 1.25000, Project Management Analysis with a mean of 3.4375 and standard deviation of 1.36473, and use of software, including

estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system with a mean of 4.0000 and standard deviation of 1.09545. The finding indicates that project management analysis had a limited improvement on the project activities. All other monitoring tools have extensive improvement on the project activities.

4.4.2 Descriptive Analysis of what extent monitoring tools are used in the projects

The study sought what extent the organizations carrying out national government construction projects use monitoring tools. The respondents were asked to state to what extent monitoring tools are used in the projects. The results were tabulated as indicated in table 4.8 below.

Table 4.8: Descriptive Statistics of extent monitoring tools are used in the projects

	N	Minimum	Maximum	Mean	Std. Deviation
Monitoring project plan, actual plan, actual work, and work complete value to see if the project is on track	97	1	5	3.6250	1.45488
Tracking of variance from specific plans	97	1	5	3.1250	1.50000
Performance review	97	1	5	3.5625	1.09354
Project Management Analysis	97	1	5	3.5000	1.15470
Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system	97	1	5	2.8125	1.27639
Valid N (listwise)	97				

The findings in table 4.8 shows that Monitoring project plan, actual plan, actual work, and work complete value to see if the project is on track with a mean of 3.6250 which is approximately 4 that extensively used and a standard deviation of 1.45488,

Tracking of variance from specific plans with a mean score of 3.1250 which is also approximately 3 that also limited use. Performance review with mean score of 3.5625 and standard deviation of 1.5, Project Management Analysis with a mean score of 3.5 and standard deviation of 1.1547, and Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system with a mean of 2.8125 and standard deviation of 1.27639. According to this finding Tracking of variance from specific plans was in limited use; Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system was not used.

4.4.3 Descriptive Analysis of the level of management support for use of monitoring tools on the projects

The study sought whether the management supports monitoring tools implementation. The respondents were asked to state the level of management support for the use of monitoring tools. The results were tabulated as indicated in table 4.9

Table 4.9: Descriptive Statistics for level of management support

	N	Minimum	Maximum	Mean	Std. Deviation
Monitoring project plan, actual plan, actual work, and work complete value to see if the project is on track	97	1	5	4.0625	1.12361
Tracking of variance from specific plans	97	1	5	3.1875	1.55858
Performance review	97	1	5	3.8750	1.20416
Project Management Analysis	97	1	5	3.4375	1.26326
Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system	97	1	5	2.8125	1.55858
Valid N (listwise)	97				

The findings in table 4.9 shows that Monitoring project plan, actual plan, actual work, and work complete value to see if the project is on track with a mean of 4.0625 which is approximately 4 that extensively used and a standard deviation of 1.12361, Tracking of variance from specific plans with a mean score of 3.1875 and standard deviation of 1.55858. Performance review with mean score of 3.8750 and standard deviation of 1.20416, Project Management Analysis with a mean score of 3.4375 and standard deviation of 1.2632, and Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system with a mean of 2.8125 and standard deviation of 1.55858. Both Tracking of variance from specific plans, and Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system had low support from the management.

4.4.4 Descriptive Analysis of whether the tools enhanced task, cost tracking and ultimately financial accountability

The study sought whether the monitoring tools enhanced cost tracking and ultimately financial accountability. The results were tabulated as indicated in table 4.10 below.

Table 4.10: Descriptive Statistics for whether the tools would enhance task, cost tracking and ultimately financial accountability

	N	Minimum	Maximum	Mean	Std. Deviation
Monitoring project plan, actual plan, actual work, and work complete value to see if the project is on track	97	2	5	4.2500	.93095
Tracking of variance from specific plans	97	1	5	4.1250	1.14746
Performance review	97	3	5	4.1250	.88506
Project Management Analysis	97	1	5	3.8125	1.10868
Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system	97	3	5	4.1875	.65511
Valid N (listwise)	97				

The findings in table 4.10 shows that Monitoring project plan, actual plan, actual work, and work complete value to see if the project is on track with a mean of 4.2500 and a standard deviation of 0.93095, Tracking of variance from specific plans with a mean score of 4.1250 and standard deviation of 1.14746. Performance review with mean score of 4.125 and standard deviation of 0.88506, Project Management Analysis with a mean score of 3.8125 and standard deviation of 1.10868, and Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system with a mean of 4.1875 and standard deviation of 0.65511. The finding shows that all the tools would have resulted to enhanced task, cost tracking and ultimately financial accountability.

4.4.5 Descriptive Analysis of whether more extensive (better use) use of the monitoring tools would enhance project delivery capability on the project

The study sought whether more extensive use of monitoring tools could enhance project delivery. The results were tabulated as indicated in table 4.11 below.

Table 4.11: Descriptive Statistics of whether more extensive (better use) use of the monitoring tools would have enhanced project delivery capability on the project

	N	Minimum	Maximum	Mean	Std. Deviation
Monitoring project plan, actual plan, actual work, and work complete value to see if the project is on track	97	2	5	4.0625	1.06262
Tracking of variance from specific plans	97	2	5	4.1250	.88506
Performance review	97	3	5	4.1250	.80623
Project Management Analysis	97	1	5	3.6875	1.49304
Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication,	97	1	5	3.8750	.88506
quality management and documentation or administration system, communication, quality management and documentation or administration system	97	2	5	3.8125	.75000
Valid N (listwise)	97				

The findings in table 4.11 shows that Monitoring project plan, actual plan, actual work, and work complete value to see if the project is on track with a mean of 4.0625 and a standard deviation of 1.06262, Tracking of variance from specific plans with a mean score of 4.1250 and standard deviation of 0.80623. Performance review with mean score of 4.1250 and standard deviation of 0.80623, Project Management Analysis with a mean score of 3.6875 and standard deviation of 1.49304, and Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, with a mean of 3.8750 and standard deviation of 0.88506, and communication, quality management and

documentation or administration system, with a mean of 3.8125 and standard deviation of 0.7500. The finding shows that all the tools would have resulted enhanced task, cost tracking and ultimately financial accountability. The result shows that more extensive (better use) use of the monitoring tools would have enhanced project delivery capability on the project.

4.4.6 Descriptive Analysis of what extent field data collection methods was used in this project

The study sought whether more extensive use of monitoring tools could enhance project delivery. The results were tabulated as indicated in table 4.12 below.

Table 4.12: Showing Descriptive Statistics of what extent field data collection methods was used in this project

		Frequency	Percent
Valid	Very Limited Use	6	6.3
	Limited Use	42	43.6
	Extensively Used	43	43.8
	Very Extensively Used	6	6.3
	Total	**97**	**100.0**

The findings in table 4.12 shows that 6.3% of projects used field data collection methods very limitedly, 43.6% limited use, 43.8% extensive use, and 6.3% very extensive use. This gives a mean of 3.5000 and standard deviation of 0.73030. This indicates that field data collection methods were used extensively in the projects.

4.4.7 Descriptive Analysis of management support for use of quality data collection methods on this project

The study sought the level of management support for use of quality data collection methods on this project. The results were tabulated as indicated in table 4.13 below.

Table 4.13: Descriptive Statistics level of management support for use of quality data collection methods on this project

			Frequency	Percent
Valid	1.	No Support	18	18.8
	2.	Very Limited Support	6	6.3
	3.	Limited Support	30	31.3
	4.	Extensive Support	37	37.5
	5.	Very Extensive Support	6	6.3
		Total	**97**	**100.0**

The findings in table 4.13 shows that 18.8% of the projects received no management support for quality field data collection methods very, 6.3% very limited support, 31.3% limited support, 37.5% extensive management support, and 6.3% very extensive management support. This gives a mean of 3.0625 and standard deviation of 1.23659, showing that there was a limited management support for the use of quality data collection methods on the projects.

4.4.8 Descriptive Analysis of whether quality of field data collection methods was considered as a critical factor in effective performance of public funded construction projects

The study sought whether quality of field data collection methods was considered as a critical factor in effective performance of public funded construction projects. The results were tabulated as indicated in table 4.14 below.

Table 4.14: Descriptive Statistics of whether quality of field data was considered as a critical factor in effective performance of the projects

			Frequency	Percent
Valid	1.	Not Considered	67	68.8
	2.	Very Limited Consideration	12	12.5
	3.	Limited Consideration	12	12.5
	4.	Very Extensive Consideration	6	6.3
Total			**97**	**100.0**

The findings in table 4.14 shows that 68.8% of the projects considered quality field data collection methods as a critical factor, 12.5% gave very limited consideration, 12.5% gave limited consideration, and 6.3% very extensive consideration. This gives a mean of 1.6250 and standard deviation of 1.14746 which indicates NO consideration (that the quality of field data was not considered as a critical factor in effective performance of the public funded construction projects).

4.4.9 Descriptive Analysis of management support for use of various quality data collection methods on this project

The study sought the level of management support for use of quality data collection methods on this project. The results were tabulated as indicated in table 4.15 below.

Table 4.15: Descriptive Statistics level of management support for use of quality data collection methods on this project

	N	Minimum	Maximum	Mean	Std. Deviation
Tracking of outcomes	97	3	5	4.1875	.75000
Making corrective adjustments	97	3	5	3.8750	.71880
Identifying where systems are falling short	97	2	5	3.5625	1.03078
Project Delivery Capability (PDC) on this project	97	2	5	3.6250	.95743
Valid N (listwise)	97				

The findings in table 4.15 shows that tracking of outcomes with a mean of 4.1875 and a standard deviation of 0.75000, making of corrective adjustments with a mean score of 3.8750 and standard deviation of 0.71880. Identifying where systems are falling short has a mean score of 3.5625 and standard deviation of 1.03078, Project Delivery Capability (PDC) on this project with a mean score of 3.6250 and standard deviation of 0.95743. This finding indicates that, even though there was extensive support for data collection methods, identifying where systems are falling short had the least extensive support, followed by project delivery capability.

4.4.10 Descriptive Analysis of whether the changes of quality of field data collection methods affected effectiveness performance of the project

The study sought whether the changes of quality of field data collection methods affected effectiveness performance of the project. The results were tabulated as indicated in table 4.16 below.

Table 4.16: Descriptive Statistics whether the changes of quality of field data collection methods affected effectiveness performance of the project.

		Frequency	Percent
Valid	1. Yes	91	93.8
	2. No	6	6.3
Total		**97**	**100.0**

The findings as in table 4.16 above, shows that the performance of 93.8% of projects were affected by changes in quality of field data collection methods. The mean of 1.06250 and standard deviation of 0.25000 indicates YES (change in quality of field data did not affect effectiveness and performance of the public funded construction projects).

4.4.11 Descriptive Analysis of whether changes in Quality of field data collection methods affected the original project completion period

The study sought whether changes in Quality of field data collection methods affected the original project completion period. The results were tabulated as indicated in table 4.17 below.

Table 4.17: Descriptive Statistics of whether changes in Quality of field data collection methods affected the original project completion period

		Frequency	Percent
Valid	1. Yes	61	62.5
	2. No	36	37.5
Total		**97**	**100.0**

The findings in table 4.17, shows that 62.5% agreement by respondents that change in quality of field data collection methods affected the original project completion period, 37.55 said No (that changes in quality of field data collection methods affected the original project completion period). The resulting average a mean score of 1.3750 and standard deviation of 0.50000 indicates YES (that the changes in Quality of field data collection methods affected the original project completion period).

4.4.12 Descriptive Analysis of whether the changes in Quality of field data collection methods result in variations in final project costs

The study sought whether the changes in Quality of field data collection methods result in variations in final project costs. The results were tabulated as indicated in table 4.18 below.

Table 4.18: Descriptive Statistics of whether the changes in Quality of field data collect ion methods results in variations in final project costs

		Frequency	Percent
Valid	1. Yes	61	62.5
	2. No	36	37.5
Total		**97**	**100.0**

Table 4.18 above shows 61% agreement by respondents that change in quality of field data collection methods resulted in variations in final project cost. 36% said No (that

changes in quality of field data collection methods resulted in variations in final project cost). The resulting mean of 1.3750 and standard deviation of 0.50000 indicates YES (that the changes in Quality of field data collection methods resulted in variations in final project costs).

4.4.13 Descriptive Analysis of whether the degree of analytical skills required is a critical factor in effective performance of the project

The study sought whether the degree of analytical skills required is a critical factor in effective performance of public funded construction projects construction project. The results were tabulated as indicated in table 4.19 below.

Table 4.19: Descriptive Statistics for whether the degree of analytical skills required was a critical factor in effective performance of the project

		Frequency	Percent
Valid	1. Yes	90	92.5
	2. No	7	7.5
Total		**97**	**100.0**

Table 4.19 above shows 92.5% agreement by respondents that degree of analytical skills required was considered a critical factor in effective performance of the projects. 7.5% said No (degree of analytical skills required was not considered a critical factor for effective performance of the projects). This finding indicates YES (that 92.5% of projects considered degree of analytical skills required as a critical factor to ensure effective performance).

4.4.14 Descriptive Analysis of how the degree of analytical skills required influenced performance of the project

The study sought how the degree of analytical skills required influenced performance of the project. The results were tabulated as indicated in table 4.20 below.

Table 4.20: Descriptive Statistics for how the degree of analytical skills required influenced performance of the project

	N	Minimum	Maximum	Mean	Std. Deviation
The original project completion period	97	1	5	3.9375	1.18145
variations in final project costs	97	2	5	3.6875	.94648
Project Delivery Capability (PDC) on this project	97	2	5	4.1875	.91059
Cost of financing the project	97	2	5	3.6875	1.01448
Cost of quality	97	1	5	3.6250	1.20416
Valid N (listwise)	97				

The findings in table 4.20 shows that the original project completion period with a mean of 3.9375 and a standard deviation of 1.18145, variations in final project costs with a mean score of 3.6875 and standard deviation of 0.94648. Project Delivery Capability (PDC) on this project' with mean score of 4.1875 and standard deviation of 0.91059; cost of financing the project, with a mean score of 3.6875 and standard deviation of 1.01448; and cost of quality, with a mean score of 3.6250 and standard deviation of 1.20416. According to the study, degree of analytical skills required had the great influence on Project Delivery Capability (PDC) on this project.

4.4.15 Descriptive Analysis of the level of management support for the use of team effort on the project

The study sought the level of management support for the use of team effort on the project. The results were tabulated as indicated in table 4.21 below.

Table 4.21: Descriptive Statistics of the level of management support for the use of team effort on the project

		Frequency	Percent
Valid	3. Limited Support	12	12.5
	4. Extensive Support	73	75.0
	5. Very Extensive Support	12	12.5
Total		**97**	**100.0**

Table 4.21 above shows 12.5% agreement by respondents that team effort received limited management support, 75% extensive support, 12.5% very extensive support. This presents a mean of 4.00 and a standard deviation of 0.51640. This finding indicates that project team effort got extensive support from project management.

4.4.16 Descriptive Analysis of whether the degree of Project Team Effort was a critical factor in effective performance of the project

The study sought the whether the degree of Project Team Effort was a critical factor in effective performance of the project. The results were tabulated as indicated in table 4.22 below.

Table 4.22: Descriptive Statistics of whether the degree of Project Team Effort was a critical factor in effective performance of the project

		Frequency	Percent
Valid	1. Yes	91	93.8
	2. No	6	6.3
Total		**97**	**100.0**

The findings in table 4.22, shows 91% of projects considered project team effort as a critical factor. 6% did not consider project team effort as a critical factor. The mean of 1.1875 and a standard deviation of 0.75000, indicates YES (that the degree of Project Team Effort was considered a critical factor in effective performance of the projects)

4.4.17 Descriptive Analysis of whether the changes in Project Team Effort affected effectiveness performance of the Government funded construction project implementation

The study sought the whether the changes in Project Team Effort affected effectiveness performance of the Government funded construction project implementation. The results were tabulated as indicated in table 4.23 below.

Table 4.23: Descriptive Statistics of whether the changes in Project Team Effort affected effectiveness performance of the project implementation

		Frequency	Percent
Valid	1. Yes	91	93.8
	2. No	6	6.3
Total		**97**	**100.0**

The findings in table 4.23, shows that 93.8% of respondent agree that change in project team effort affected effectiveness of their projects. 6.3% did not accept. This presents a mean of 1.0625 and a standard deviation of 0.25000, indicating a YES (changes in Project Team Effort affected effective performance of the Government funded construction project implementation)

4.4.18 Descriptive Analysis of whether the changes in Project Team Effort affects the original project completion period

The study sought whether the changes in Project Team Effort affect the original project completion period. The results were tabulated as indicated in table 4.24 below.

Table 4.24: Descriptive Statistics of whether the changes in Project Team Effort affected the original project completion period

		Frequency	Percent
Valid	1. Yes	85	87.5
	2. No	12	12.5
Total		**97**	**100.0**

The findings in table 4.24 shows that 87.5% of respondents accepted said that change in project team effort affected the project completion period. The resulting mean of 1.1250 and a standard deviation of 0.34157confirms a YES (change in project team effort affected the original project completion period).

4.4.19 Descriptive Analysis of whether the changes in Project Team Effort result in variations in final project costs

The study sought whether the changes in Project Team Effort result in variations in final project costs. The results were tabulated as indicated in table 4.25 below.

Table 4.25: Descriptive Statistics of whether the changes in Project Team Effort result in variations in final project costs

		Frequency	Percent
Valid	1. Yes	85	87.5
	2. No	12	12.5
Total		**97**	**100.0**

The findings in table 4.25, shows that 87.5% of respondents agree that change in project team effort resulted in variations in final project cost. This outcomes with a mean of 1.1250 and a standard deviation of 0.34157 indicates a YES (the changes in Project Team Effort resulted in variations in final project costs)

4.4.20 level of influence of project team factors on project performance

The study sought the level of influence of project team factors on project performance. The results were tabulated as indicated in table 4.26 below.

Table 4.26: Descriptive Statistics for level of influence of project team factors on project performance

	N	Minimum	Maximum	Mean	Std. Deviation
Project team members satisfied with the way the project is being managed	97	1	5	3.7500	1.06458
Project team members feel challenged and excited about their work	97	3	5	3.7500	.77460
Project team members feel comfortable in voicing concerns or issues to project manager	97	3	5	4.2500	.68313
Project manager, sponsor and customer share consistent vies of project status and issues	97	3	5	4.0625	.68007
Customer decision makers satisfied with the deliverables provided by the project	97	2	5	3.9375	.77190
Project is free from serious customer issues or concerns	97	3	5	3.8750	.80623
Customer decision makers are satisfied with the skills and capabilities of project team	97	2	5	3.6875	.94648
Customer Decision makers satisfied with flexibility of the project team	97	1	5	3.5625	1.03078
Valid N (listwise)	97				

The findings in table 4.26 shows that Project team members satisfied with the way the project is being managed with a mean of 3.7500 and a standard deviation of 01.06458, Project team members feel challenged and excited about their work with a mean score of 3.7500 and standard deviation of 0.77460. Project team members feel comfortable in voicing concerns or issues to project manager with mean score of 4.2500 and standard deviation of 0.68313, Project manager; sponsor and customer share consistent vies of project status and issues with a mean score of 4.0625 and standard deviation of 0.68007. Customer decision makers satisfied with the deliverables provided by the project with mean score of 3.9375 and standard deviation of 0.77190;

Project is free from serious customer issues or concerns with mean score of 3.8750 and standard deviation of 0.80623; Customer decision makers are satisfied with the skills and capabilities of project team with mean score of 3.6875 and standard deviation of 0.94648; Customer decision makers are satisfied with the skills and capabilities of project team with mean score of 3.5625 and standard deviation of 1.03078.

4.4.21 Descriptive statistics of whether they experience challenges with contract management in the projects

The study sought whether they experience challenges with contract management in the projects. The results were tabulated as indicated in table 4.27 below.

Table 4.27: Descriptive Statistics whether they experience challenges with contract management in the projects

		Frequency	Percent
Valid	1. Yes	73	75.0
	2. No	24	25.0
Total		**16**	**100.0**

The findings in table 4.27, shows that 75% of respondents agree that they experienced challenges with contract management in their projects. Only 25% did not agree. The resulting average mean of 1.25 and a standard deviation of 0.44721. This indicates a YES (they experience challenges with contract management in their projects)

4.4.22 Descriptive statistics of whether more extensive (or better use) of proper contract management activities enhance project delivery capability (PDC) on the project

The study sought whether more extensive (or better use) of proper contract management activities enhance project delivery capability (PDC) on the project. The results were tabulated as indicated in table 4.28 below.

Table 4.28: Descriptive Statistics for whether more extensive (or better use) of proper contract management activities enhance project delivery capability (PDC) on the project

	N	Minimum	Maximum	Mean	Std. Deviation
Planning for the contract	97	2	5	4.1250	.88506
Administering the contract	97	3	5	4.1250	.61914
Contract management plan	97	3	5	4.0625	.57373
Contract Management Analysis	97	3	5	3.8750	.61914
Procurement management plan	97	2	5	3.9375	.85391
Contract documentation and contract closure procedure	97	2	5	3.8750	.95743
Procurement audits and record management system	97	3	5	3.9375	.68007
Direct and manage project execution to authorize the contractor's work at the appropriate time	97	3	5	4.0625	.68007
Performance reporting to monitor contract cost, schedule, and technical performance	97	3	5	3.8750	.80623
Integrate change control to ensure that changes are properly approved, and that all those with a need to know are aware of such change	97	2	5	400	.96609
Risk monitoring and control to ensure that risk are mitigated	97	3	5	4.0625	.57373
Monitoring of payment to suppliers	97	3	5	3.8125	.75000
Valid N (listwise)	97				

The findings in table 4.28 shows that Planning for the contract with a mean of 4.1250 and a standard deviation of .88506, administering the contract with a mean score of

4.1250 and standard deviation of 0.61914; contract management plan with mean score of 4.0625 and standard deviation of 0.57373; contract management analysis with mean score of 3.8750 and standard deviation of 0.61914; procurement management plan with mean score of 3.9375 and standard deviation of 0.85391; contract documentation and contract closure procedure with mean score of 3.8750 and standard deviation of 0.95743 ; procurement audits and record management system with mean score of 3.9375 and standard deviation of 0.68007; direct and manage project execution to authorize the contractor's work at the appropriate time with mean score of 4.0625 and standard deviation of 0.68007; performance reporting to monitor contract costs, schedule, and technical performance with mean score of 3.875 and standard deviation of 0.80623; Integrate change control to ensure that changes are properly approved, and that all those with a need to know are aware of such change with mean score of 400 and standard deviation of 0.96609 Risk monitoring and control to ensure that risk are mitigated with mean score of 4.0625 and standard deviation of 0.57373 Monitoring of payment to suppliers with a mean score of 3.8125 and standard deviation of 0.7500.

This finding indicates that the organizations need to extensively enhance planning for the contract, administering the contract, contract management plan, contract management analysis, procurement management plan, contract documentation and contract closure procedure, procurement audits and record management system, direct and manage project execution to authorize the contractor's work at the appropriate time, performance reporting to monitor contract costs, schedule, and technical performance, integrate change control to ensure that changes are properly approved, and that all those with a need to know are aware of such change, risk monitoring and control to ensure that risk are mitigated, monitoring of payment to suppliers

4.4.23 Descriptive statistics of how contract management influence degree of analytical skills required, project team effort, project performance, quality of field data collection methods, and monitoring tools

The study sought how contract management influence degree of analytical skills required, project team effort, project performance, quality of field data collection methods, and monitoring tools. The results were tabulated as indicated in table 4.29 below.

Table 4.29: Descriptive Statistics of how contract management influence degree of analytical skills required, project team effort, project performance, quality of field data collection methods, and monitoring tools

	N	Minimum	Maximum	Mean	Std. Deviation
Degree of analytical skills required	97	2	5	4.0625	.92871
Project Team Effort	97	3	5	4.1250	.80623
Project Performance	97	3	5	4.3125	.60208
Quality of field data collection methods	97	2	5	4.0625	.92871
Monitoring Tools	97	2	5	4.1250	.95743
Valid N (listwise)	97				

The findings in table 4.29 shows that Degree of analytical skills required with a mean of 4.0625 and a standard deviation of 0.92871, Project Team Effort with a mean score of 4.1250 and standard deviation of 0.80623. Project Performance with mean score of 4.3125 and standard deviation of 0.60208, Quality of field data collection methods with a mean score of 4.1250 and standard deviation of 0.92871; Monitoring Tools project with a mean score of 3.6250 and standard deviation of 0.95743. This result indicate that contract management has great effect on degree of analytical skills required, project team effort, project performance, quality of field data collection methods, and monitoring tools.

4.4.24 Descriptive statistics of whether they would the use of Project monitoring tools, Quality of field data collection method, project team performance, degree of analytical skills required, and contract management collectively enhancing performance of project in the organization.

The study sought whether they would the use of Project monitoring tools, Quality of field data collection method, project team performance, degree of analytical skills required, and contract management collectively enhancing performance of project in the organization. The results were tabulated as indicated in table 4.30 below.

Table 4.30: Descriptive Statistics of whether the use of Project monitoring tools, Quality of field data collection method, project team performance, degree of analytical skills required, and contract management collectively could enhance performance of project in the organization.

		Frequency	Percent
Valid	4. Extensively Enhance	67	68.8
	5.Very Extensively Enhance	30	31.3
	Total	**16**	**100.0**

The findings in table 4.30 shows that 68.8% of respondents agree that the use of Project monitoring tools, Quality of field data collection method, project team performance, degree of analytical skills required, and contract management collectively enhanced performance of project. Mean of 4.3125 and a standard deviation of 0.47871, indicates extensive enhancement.

4.5 Inferential Analysis

This focuses on evaluating the strengths and direction of relationship between variables inferring findings from the sample to the population (Bryman & Bell, 2015). In this study, the inferential analysis focuses on evaluating the relationship between the various monitoring and evaluation practices and performance of national

government funded construction projects in Uasin Gishu County, Kenya. The multiple linear regression technique was used with the following model being tested:

$$\mathbf{Y= \beta_0+ \beta\ _1X_1+ \beta_2X_2+ \beta_3X_3+\beta_4X_4+ \beta_5X_{Y5}+ \varepsilon,}$$

Where Y=Performance of national government funded construction projects; X_1=Monitoring tools; X_2=Degree of analytical skills required; X_3= project team effort; X_4= Quality of field data collection methods; X_5= Contract management; ε = error term. Table 4.32 presents a summary of the model.

Table 4.31: Inferential Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.974(a)	.713	.569	.39531

a. Predictors: (Constant), contract management, Quality of field data collection methods, Degree of analytical skills required, Project Team Effort, Monitoring Tools

As the table 4.31 shows r-square is 0.713, which indicates that the model explains the 71.3% of changes in performance of the national government funded construction projects. According to Toole (2013), a model that yields an R Square of above 0.25 is considered to be fit in social science.

Table 4.32 below presents the Analysis of Variances (ANOVA) of the model. The ANOVA test examines the significance of the relationship between the independent variable and the dependent variable by comparing the predicting power of the model with that of the intercept only model (Faraway, 2002).

Table 4.32: ANOVA for the Model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.875	32	.775	4.959	.015(a)
	Residual	1.563	65	.156		
	Total	5.437	97			

a. Predictors: (Constant), contract management, Quality of field data collection methods, Degree of analytical skills required, Project Team Effort, Monitoring Tools

b. Dependent Variable: Project Performance

As the table 4.32 shows, the ANOVA test yielded a P-value of 0.015, which suggests the existence of statistically significant relationship between project performance and contract management, quality of field collection methods, degree of analytical skills required, project team effort, and monitoring tools.

Table 4.33: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.672	1.078		1.551	.152
	Degree of analytical skills required	.302	.179	.466	1.693	.121
	Project Team Effort	.027	.226	.036	.119	.908
	Quality of field data collection methods	.539	.201	.831	2.676	.023
	Monitoring Tools	-.298	.193	-.474	-1.545	.153
	contract management	.080	.204	.077	.394	.702

a. Dependent Variable: Performance of national government funded construction projects in Uaisn Gishu County

4.5.1 Influence of monitoring tools on performance of national government funded construction projects in Uasin Gishu County, Kenya

The first objective of the study was to examine the influence of monitoring tools on the performance of national government funded construction projects. As shown in table 4.33 shows the t-statistics for monitoring tools yielded a p-value of 0.153. Since this p-value is greater than 0.05, we fail to reject the null hypothesis and affirms that there is no statistically significant relationship between the monitoring tools and the performance of national government funded construction projects in Uasin Gishu County, Kenya, at 0.05 level of significance. The finding is in consistent with Waithera & Wanyoike (2015) findings that there was no significant relationship

between stakeholder's participation in M & E activities, and the project's monitoring and evaluation performance. According to Ika & Thuillier (2009) findings, the tool may fall short in delivering success if they run counter to cultural and work values, considering the fact that many of them are rationality and efficiency driven. Similarly, the tools are based on western Greco-Roman philosophical premise that a man is rational being (Rwelamila, 1999), which is not always the case in Africa (Muriithi, 2003).

4.5.2 Influence of quality of field data collection methods on performance of national government funded construction projects in Uasin Gishu County, Kenya

The second objective of the study was to examine the influence of quality of field data collection methods on the performance of national government funded construction projects. As shown in table 4.33 above the t-statistics for monitoring tools yielded a p-value of 0.023. Since this p-value is less than 0.05, we reject the null hypothesis and affirm that there is statistically significant relationship between the quality of field data collection methods and the performance of national government funded construction projects in Uasin Gishu County, Kenya at 0.05 level of significance. The finding is consistent with the findings of Jha & Iyer (2006) that compliance with quality specifications is an important measure of any construction project. Collecting, analyzing, interpreting, and acting on data for project performance measures allows professionals to identify where systems are failing short, to make corrective adjustments, and to track outcomes. According to Irefi & Adeyemi (2013) findings, project quality management has significant relationship with business success and technical success.

4.5.3 Influence of degree of analytical skills required on performance of national government funded construction projects in Uasin Gishu County, Kenya

The fourth objective of the study was to examine the influence of Degree of analytical skills required on the performance of national government funded construction projects. As shown in table 4.33 above the t-statistics for Degree of analytical skills required yielded a p-value of 0.121. Since this p-value is greater than 0.05, we fail to reject the null hypothesis and affirm that there is no statistically significant relationship between the Degree of analytical skills required and the performance of national government funded construction projects in Uasin Gishu County, Kenya, at 0.05 level of significance. The finding is consistent with Kalinova (2007) finding that the requirement for successful performance of managerial positions is fulfilled by development of potential; and that project cost performance is influenced by four skill components, namely, emotional intelligence, interpersonal skills, apparent sincerity, and budgeting (Sunindijo, 2015). Zackaria, Mohamed, Ahzahar & Hashini (2015), also found that project manager leading characteristics influence the success of the project positively.

4.5.4 Influence of project team effort on performance of national government funded construction projects in Uasin Gishu County, Kenya

The fourth objective of the study was to examine the influence of project team effort on the performance of national government funded construction projects. As shown in table 4.33 above the t-statistics for project team effort yielded a p-value of 0.908. Since this p-value is greater than 0.05, we fail to reject the null hypothesis and affirm that there is no statistically significant relationship between the project team effort and the performance of national government funded construction projects in Uasin Gishu County, Kenya, at 0.05 level of significance. The finding is consistent with Kalinova

(2007) finding that the requirement for successful performance of managerial positions is fulfilled by development of potential; Sunindijo, (2015) finding that project cost performance is influenced by four skill components, namely, emotional intelligence, interpersonal skills, apparent sincerity, and budgeting; and Chan (2015) finding that team work is increasingly applied in many organizations in an effort to improve performance, yet empirical evidence demonstrate that linkage between team effectiveness and project success is scarce.

4.5.5 Moderating Influence of Contract Management on the relationship between monitoring and evaluation, and performance of national government funded construction projects in Uasin Gishu County, Kenya

To establish the moderating influence of contract management in the relationship between project monitoring tools, Quality of field data collection method, project team effort, degree of analytical skills required, and performance of national government funded construction projects, we run a regression less the contract management as a factor and do the comparison with what we had in table 4.31, 4.32, 4.33.

Table 4. 34: ANOVA Table for the model before introducing the moderating variable (Contract Management)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.850	25	.963	6.672	.006(a)
	Residual	1.587	72	.144		
	Total	**5.437**	**97**			

a. Predictors: (Constant), Monitoring Tools, Degree of analytical skills required, Project Team Effort, Quality of field data collection methods

b. Dependent Variable: Project Performance

Table 4.35: Inferential Analysis before introducing the moderating variable (contract management)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.972(a)	.708	.602	.37997

a Predictors: (Constant), Monitoring Tools, Degree of analytical skills required, Project Team Effort, Quality of field data collection methods

Table 4.36: Coefficients(a) before introducing the moderating variable (contract management)

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
1	(Constant)	2.033	.550		3.696	.004
	Degree of analytical skills required	.268	.150	.414	1.785	.102
	Project Team Effort	.064	.198	.085	.323	.753
	Quality of field data collection methods	.545	.193	.970	2.824	.017
	Monitoring Tools	-.312	.182	-.496	-1.710	.115

a Dependent Variable: Performance of National Government funded construction projects in Uasin Gishu County, Kenya

The fifth objective of the study was to examine the moderating influence of contract management on monitoring and evaluation practices and performance of national government funded construction projects. The changes observed with reference to table 4.31, 4.32, 4.33, 4.34, 4.35, 4.36, indicate changes in values of R squared, constants, p-values, among other indicators. This is a clear indication that contract management has a moderating influence on the relationship between the degree of analytical skills required, project team effort, quality of field data collection methods, monitoring tools, and performance of national government funded construction projects in Uasin Gishu County, Kenya. The finding is consistent with Mutua, Waiganjo & Oteyo (2014) finding that, contract management and other factors accounted for 66% variation in project performance.

4.5.6 Estimated regression equation

Based on table 4.33, the estimated regression equation was: Performance of national government funded construction projects in Uasin Gishu County, Kenya (Y)= **1.672-0.298X_1+0.539X_2+ 0.302X_3+ 0.027X_4+ 0.080X_5+ ε**

The equation shows that quality of field data collection method has the most significant influence on performance of national government funded construction projects. The beta coefficient of 0.539 implies that, holding other factors constant, increasing quality of data collection methods by 1 unit would increase performance of national government funded construction projects by 0.539 units. Monitoring tools have a negative relation with performance of national government funded construction projects in Uasin Gishu County, Kenya as beta coefficient (-0.298) suggests that improving monitoring tools by 1 unit would decrease level of performance of national government funded construction projects in Uasin Gishu County, Kenya by 0.298 units.

CHAPTER FIVE
SUMMARY OF FINDINGS, CONCLUSION, AND RECOMMENDATION

5.1 Introduction

This chapter presents the discussions of the findings, conclusions, recommendations and suggestions for further research. This study was carried out with the main objective of establishing whether the monitoring and evaluation in national government funded construction projects influence their performance.

5.2 Summary of findings

The study employed descriptive survey research design where a sample of 134 respondents was drawn from a population of 215 using simple random sampling. A total of 134 questionnaires were distributed to the respondents 97 were dully filled and returned to the researcher translating a response rate of 72.39%. the collected data was analyzed using both descriptive and multiple linear regression techniques.

5.2.1 Influence of monitoring tools on the performance of national government funded construction projects.

The descriptive analysis shows that, all other monitoring tools have extensive improvement on the project activities, but project management analysis has a limited improvement on the project activities. According to this finding Tracking of variance from specific plans was in limited use; Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system was not used. Both Tracking of variance from specific plans, and Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system had low support

from the management. The finding shows that all the tools would have resulted to enhanced task, cost tracking and ultimately financial accountability. The finding also shows that all the tools would have resulted enhanced task, cost tracking and ultimately financial accountability. The result further shows that more extensive (better use) use of the monitoring tools would have enhanced project delivery capability on the project.

5.2.2 Influence of quality of field data collection methods on the performance of national government funded construction projects.

The finding shows that there was a limited management support for the use of quality data collection methods on the projects. The findings also indicate that the quality of field data was not considered as a critical factor in effective performance of the public funded construction projects. This finding indicates that, even though there was extensive support for data collection methods, identifying where systems are falling short had the least extensive support, followed by project delivery capability. Change in quality of field data did not affect effectiveness and performance of the public funded construction projects, and the changes in Quality of field data collection methods affected the original project completion period. The study further indicates that the changes in Quality of field data collection methods resulted in variations in final project costs. The respondent added sustainability as another influence factor of quality of field data collection methods in the performance of national government funded construction projects. Others mentioned that quality data method yield quality data and the quality of the data determine the success of the project (quality data yield successful project), and enables work to be done effectively. According to interview findings, quality data is indicated by some respondents to normally translates into accuracy in terms of budgetary and variances, and is of great contribution in getting

the details of the progress of the project, help in correcting decision making in right time, and also reduces risk during the project period; this helps complete the project within the contract period. Identifying key results and determining what constitutes success, contributed to collection of data, analyzing and interpreting the results in the key objectives of the whole process.

5.2.3 Influence of degree of analytical skills required on the performance of national government funded construction projects.

The degree of analytical skills required was a critical factor in effective performance of public funded construction projects. According to the study, degree of analytical skills required had the great influence on Project Delivery Capability (PDC) on this project.

5.2.4 Influence of project team effort on the performance of national government funded construction projects.

This finding indicates that project team effort got extensive support from project management, and that the degree of Project Team Effort was a critical factor in effective performance of the project. Similarly, changes in Project Team Effort affected effectiveness performance of the Government funded construction project implementation. The changes in Project Team Effort required affect the original project completion period tracking of outcomes. Furthermore the changes in Project Team Effort resulted in variations in final project costs.

5.2.5 Influence of degree of contract management on the performance of national government funded construction projects.

The findings indicate that the projects experiences challenges with contract management in their organization. Some respondents mentioned that better contract management led to successful implementation of projects. Some also mentioned that

teamwork made the implementation very fast. Influenced effectiveness and quality of work done, and ensured success of the project and was critical. Helps to advice the construction team on the project critical path at a certain period of time hence help in planning purposes, they also helps sort out the discrepancies related to the binding contract documents thus minimizing time loss during the project period. Furthermore, the study indicates that it ensured that costs and timelines were checked and managed for betterment of the project and it involve management against good practices aimed at bringing improvements in the quality of projects. It is particularly relevant for contracts where services are delivered over a period of time (five years plus) where customers need to ensure that service level and values for money are maintained over the duration of the contract. In other words it helps sort out the discrepancies during the project period. It enhances delivery and quality service.

5.3 Conclusion

Based on the findings of the study, the researcher has drawn several conclusions which are presented in this section following the order of the objectives of the study.

5.3.1 Influence of monitoring tools on the performance of national government funded construction projects in Uasin Gishu County, Kenya

The research findings have led to the conclusion that monitoring tools have no statistically significant relationship with the performance of national government funded construction projects. This due to the fact that: project management analysis contributes limited improvement on the project activities. Tracking of variance from specific plans is in limited use; there is no use of software in estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration, communication, quality management and documentation or administration system; unfavorable support from management for both tracking of variance from specific

plans, and use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system. The finding also has shown that all the improved use of monitoring tools would have resulted enhanced task, cost tracking and ultimately financial accountability, more extensive (better use), and enhanced project delivery capability.

5.3.2 Influence of quality of field data collection methods on the performance of national government funded construction projects in Uasin Gishu County, Kenya

The research findings have led to the conclusion that field data collection methods have statistically significant and positive relationship with the performance of national government funded construction projects. Quality of field data collection method was found to have the most significant influence of the performance of national government construction projects in Uasin Gishu County, Kenya.

5.3.3 Influence of degree of analytical skills required on the performance of national government funded construction projects in Uasin Gishu County, Kenya

The research findings have led to the conclusion that degree of analytical skills required has a significant weak influence (β_3=0.302) on the performance of national government funded construction projects in Uasin Gishu County, Kenya.

5.3.4 Influence of project team effort on the performance of national government funded construction projects in Uasin Gishu County, Kenya

The research findings have led to the conclusion that project team effort was found to have the weakest positive relationship (β_4=0.027) with the performance of national government funded construction projects.

5.4.5 Influence of contract management on the relationship between monitoring and evaluation, and performance of national government funded construction projects in Uasin Gishu County, Kenya

The research findings have led to the conclusion that contract management has moderating influence on the relationship between monitoring and evaluation practices and performance of national government funded construction projects in Uasin Gishu County, Kenya.

5.4 Recommendations

5.4.1 The study recommends improvement and management support for project management analysis, and tracking of variance from specific plans. The project managers should embrace the use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system.

5.4.2 The study recommends management support for the use of quality data collection methods on the projects, identifying where systems are falling short and project delivery capability. Similarly, quality of field data should be considered as a critical factor in effective performance of the public funded construction projects.

5.4.3 The study recommends that though the degree of analytical skills required is considered a critical factor, and has the great influence on Project Delivery Capability (PDC) on this project; more emphasis should be placed on cost of quality.

5.4.4 The study recommends that project team effort should be accorded very extensive support from project management. This is because changes in Project Team Effort affects effective performance of the national government funded construction

project implementation. Such change affects the original project completion period and tracking of outcomes, and results in variations in final project costs.

5.4.5 The study recommends critical look into contract management to ensure improved, implementation, effectiveness and quality of work done, sorting out the discrepancies related to the binding contract documents thus minimizing time loss during the project period, and ensuring that costs and timelines are checked and managed for betterment of the project. The study further recommends the develop human resources in the construction industry through proper and continuous training programs about construction projects performance. It also recommends a clear mission and vision in place to formulate, implement and evaluate the performance of national funded construction projects. The study further recommends the introduction of contract management training for relevant stakeholders.

5.5 Suggestion for further studies

The current study was limited to construction projects funded by national government in Uasin Gishu County, Kenya. Future studies should consider exploring other counties so as to support the generalization of the findings. Future studies can also focus on county government funded construction projects.

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APPENDICES

Appendix 1: Introductory letter to the questionnaire

Dear Respondent,

This questionnaire has been designed to collect data on the study investigating, "Influence monitoring and evaluation factors on the performance of government funded construction projects in Kenya"**.** The researcher is pursuing a Master of Science in Project Management of Jomo Kenyatta University of Agriculture and technology. The data sought for this questionnaire is needed for research purposes only and will be treated with confidentiality. Please return the completed questionnaire to the undersigned, by 24th June 2016. If you have any question or would like further information, kindly contact me on mobile number 0720322687 or e-mail calonjure@yahoo.com.

Thanks for your help**.**

Yours faithfully,

Caleb Odhiambo Onjure

Appendix 2: Research Questionnaire

Confidentiality Statement

This questionnaire will be used purely for academic purposes. All information will be treated as confidential and constrained to this study only.

A. RESPONDENT'S PERSONAL INFORMATION

Q1. Gender (Tick where applicable) Male [ ] Female [ ]

Q2. Age bracket (Tick where applicable)

Age bracket	Below 30 years	30-39 years	40-49 years	50 years and above
Response				

Q3. Highest level of education attained (Tick where applicable) a) Primary [ ] b) Secondary [ ] c) College [ ] d) University [ ]

Others please specify……

Q4 For how long has the organization in consideration been implementing national government funded construction projects? (Tick where applicable) a) less than 1 year [ ] b) 1-2 years [ ] c) 3-4 years [ ] d) 5 and above years [ ]

Q5. Do you have a project monitoring and evaluation process for projects in the organization?

Yes [ ] No [ ]

Q6. If Yes, who carries out such monitoring and evaluation procedures?

B. MONITORING TOOLS

Q7. To what extent was the following monitoring tools used on this particular project? Was not used **= 1.** Very limited use **= 2.** Limited use = **3.** Extensively used = **4.** Very extensively used = **5**

Area	**5**	**4**	**3**	**2**	**1**
Monitoring project plan, actual plan, actual work, and work complete value to see if the project is on track					
Tracking of variance from specific plans					
Performance review					
Project Management Analysis					
Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system					

Q7. What was the level of management support for the use of the following monitoring tools on this project? No support **= 1.** Extremely low support **= 2.** Low support = **3.** High support = **4.** Very high support = **5**

Area	**5**	**4**	**3**	**2**	**1**
Monitoring project plan, actual plan, actual work, and work complete value to see if the project is on track					
Tracking of variance from specific plans					
Performance review					
Project Management Analysis					
Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system					

Q8. In your opinion, would the use of monitoring tools on this project improve project activities? No improvement = **1.** Very limited improvement = **2.** Limited improvement **= 3.** Extensive improvement = **4.** Very extensive improvement = **5.**

Area	**5**	**4**	**3**	**2**	**1**
Monitoring project plan, actual plan, actual work, and work complete value to see if the project is on track					
Tracking of variance from specific plans					
Performance review					
Project Management Analysis					
Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system					

Q9. In your opinion, would the use of the following tools on this project enhance task, cost tracking and ultimately, financial accountability? No enhancement **= 1.** Very limited enhancement **= 2.** Limited enhancement = **3.** Extensive enhancement = **4.** Very extensive enhancement = **5.**

Area	**5**	**4**	**3**	**2**	**1**
Monitoring project plan, actual plan, actual work, and work complete value to see if the project is on track					
Tracking of variance from specific plans					
Performance review					
Project Management Analysis					
Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system					

Q10. In your opinion, would more extensive (or better use) of the monitoring tools enhance Project Delivery Capability (PDC) on this project? No enhancement **= 1.** Very limited enhancement **= 2.** Limited enhancement = **3.** Extensive enhancement = **4.** Very extensive enhancement = **5.**

Area	**5**	**4**	**3**	**2**	**1**
Monitoring project plan, actual plan, actual work, and work complete value to see if the project is on track					
Tracking of variance from specific plans					
Performance review					
Project Management Analysis					
Use of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration system					

C. QUALITY OF FIELD DATA COLLECTION METHODS

Q11. To what extent was different field data collection methods used on this particular project? (Tick where applicable)

1	Was not used	
2	Very limited use	
3	Limited use	
4	Extensive use	
5	Very extensive use	

Q12. What was the level of management support for the use of quality data collection methods on this project? (Tick where applicable)

1	No Support	
2	Very Limited Support	
3	Limited Support	
4	Extensive Support	
5	Very Extensive Support	

Q13. Do you think Quality of field data collection methods was considered as a critical factor in effective performance of public funded construction projects? (Tick where applicable)

1	Not Considered	
2	Very Limited Consideration	
3	Limited Consideration	
4	Extensive Consideration	
5	Very Extensive Consideration	

Q14. Describe the influence of Quality of various field data collection methods on the performance of government funded construction projects you have been involved in:- Kindly rate the level of influence as below. Very Great influence= **5.** Great influence = **4.** Minor influence = **3.** No influence = **2.** Not sure **= 1**

Area	**5**	**4**	**3**	**2**	**1**
Tracking of outcomes					
Making corrective adjustments					
Identifying where systems are falling short					
Project Delivery Capability (PDC) on this project					

Q15. In your opinion do you think the changes Quality of field data collection methods affected effectiveness performance of the Government funded construction project implementation? (Tick where applicable)

Yes [ ] No [ ]

Q16. Did the changes in Quality of field data collection methods affected the original project completion period? (Tick where applicable)

Yes [ ] No [ ]

Q17. Did the changes in Quality of field data collection methods result in variations in final project costs? (Tick where applicable)

Yes [ ] No [ ]

Q18. In your opinion, what was the contribution of quality of field data collection methods to the ultimate success or failure of the project? (Tick where applicable)

D. DEGREE OF ANALYTICAL SKILLS REQUIRED

Q19. Do you think Degree of analytical skills required is a critical factor for effective performance of public funded construction projects construction project? (Tick where applicable)

Yes [ ] No [ ]

Q20. In your own opinion, how did the Degree of analytical skills required influence performance of the projects you have been involved in? Very Great influence**= 5;** Great influence**= 4.** Minor influence **= 3.** No Influence = **2.** Not sure = **1.**

Area	**5**	**4**	**3**	**2**	**1**
the original project completion period					
variations in final project costs					
Project Delivery Capability (PDC) on this project					
Cost of financing the project					
Cost of quality					

D. PROJECT TEAM EFFORT

Q21. What was the level of management support for the use of team effort on the project?

1	No support	
2	Very limited support	
3	Limited support	
4	Extensive support	
5	Very extensive support	

Q22. Do you think Degree of Project Team Effort was a critical factor in effective performance of the project? (Tick where applicable)

Yes [ ] No [ ]

Q23. In your opinion do you think the changes in Project Team Effort affected effectiveness performance of the Government funded construction project implementation? (Tick where applicable)

Yes [ ] No [ ]

Q24. Did the changes in Project Team Effort required affect the original project completion period? (Tick where applicable)

Yes [ ] No [ ]

Q25. Did the changes in Project Team Effort result in variations in final project costs? (Tick where applicable)

Yes [ ] No [ ]

Q26. Kindly rate their level of influence of the following project team factors on project performance. Very Great influence**= 5;** Great influence**= 4.** Minor influence **= 3.** No influence**= 2.** Not sure **= 1.**

Area	**5**	**4**	**3**	**2**	**1**
Project team members satisfied with the way the project is being managed					
Project team members feel challenged and excited about their work					
Project team members feel comfortable in voicing concerns or issues to [project manager					
Project manager, sponsor and customer share consistent vies of project status and issues					
Customer decision makers satisfied with the deliverables provided by the project					
Project is free from serious customer issues or concerns					
Customer decision makers are satisfied with the skills and capabilities of project team					
Customer Decision makers satisfied with flexibility of the project team					

E. CONTRACT MANAGEMENT

Q27. Do you experience any challenge with contract management in your organization? (Tick where applicable)

Yes [ ] No [ ]

Q28. In your opinion, would more extensive (or better use) of proper contract management activities enhance Project Delivery Capability (PDC) on this project? **1.** No enhancement **2.** Very limited enhancement **3.** Limited enhancement **4.** Extensively enhance **5.** Very extensive enhancement.

Area	**5**	**4**	**3**	**2**	**1**
Planning for the contract					
Administering the contract					
Contract management plan					
Contract Management Analysis					
Procurement management plan					
Contract documentation and contract closure procedure					
Procurement audits and record management system					
Direct and manage project execution to authorize the contractor's work at the appropriate time					
Performance reporting to monitor contract cost, schedule, and technical performance					
Integrate change control to ensure that changes are properly approved, and that all those with a need to know are aware of such change					
Risk monitoring and control to ensure that risk are mitigated					
Monitoring of payment to suppliers					

Q29. Describe how contract management influence the following in the government funded construction projects you have been involved in:- Kindly rate the level of influence as below. Very Great = **5;** Great = **4.** Minor = **3.** No Effect = **2.** Not sure = **1.**

Area	**5**	**4**	**3**	**2**	**1**
Degree of analytical skills required					
Project Team Effort					
Project Performance					
Quality of field data collection methods					
Monitoring Tools					

Q30. In your opinion, what was the contribution of contract management to the ultimate success or failure of the project?

E. PERFORMANCE OF NATIONAL GOVERNMENT FUNDED CONSTRUCTION PROJECTS

Q31. In your opinion, would the use of Project monitoring tools, Quality of field data collection method, project team effort, degree of analytical skills required, and contract management enhance project performance in the organization? (Tick where applicable)

Area	
No Enhancement	**1**
Very limited enhancement	**2**
Limited enhancement	**3**
Extensive enhancement	**4**
Very extensive enhancement	**5**

Q32. In your opinion, what factor contributed most to the ultimate success or failure of the project?

Appendix 3: Work Plan

ACTIVITY	PERIOD					
	February 2016	**March 2016**	**April 2016**	**May 2016**	**Aug 2016**	**Sept 2016**
Problem Formulation						
Literature Review						
Proposal Development						
Proposal Submission						
Collect Data						
Data Processing Analysis						
Final project Write Up						
Final project Submission and Defense						

Appendix 4: The Proposed Budget for the Study

ITEMS	QUANTITY	AMOUNT
Printing papers	6 Reams	15,000
Pens	1 dozen	2500
Telephone Communication		30,000
Pencil	2	40
Rulers	4	50
Box file	4	12,000
File folder	10	6,000
Flash disk	2	13,000
Computer services		50,000
Photo copying		20,000
Note books	1	2000
Meals		50,000
Transport		89,649.60
Accommodation		91,540
Project report binding		10,000
Laptop & printer	1 each	64,000
Miscellaneous 10%		39,804.40
TOTAL		**398,044**

Appendix 5: Krejcie and Morgan Sample Size Table

TABLE FOR DETERMINING SAMPLE SIZE FROM A GIVEN POPULATION

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	382
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	397

Note: "N" is population size "S" is sample size

Krejcie, R. and Morgan, D.W., (1970). Determining Sample size for Research Activities", Educational and Psychological Measurement.

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