

**FACTORS INFLUENCING SUCCESSFUL COMPLETION
OF ROADS CONSTRUCTION PROJECTS IN BOMET
TOWNSHIP**

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**RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENT FOR THE AWARD OF MASTERS OF ARTS DEGREE IN
PROJECT PLANNING AND MANAGEMENT, UNIVERSITY OF NAIROBI**

2016

DECLARATION

This research project is my original work and has not been presented for a degree or any other award in university

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This research project has been submitted for examination with my approval as university supervisor

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DEDICATION

This research project is dedicated to my loving family, for offering support during my studies. I also dedicate it to my siblings for offering inspiration and moral support while facing academic challenges at the University of Nairobi.

ACKNOWLEDGMENT

One scholar once said that if he was able to see far, it was because he stood on the shoulders of others. A special mention goes to my supervisor, Dr. Otieno for his guidance, suggestions and encouragement led to the writing of this research proposal. I owe him deep gratitude. Moreover, I also wish to recognize my course lecturers in shaping me in different ways in order to conduct the research on study, ranging from teaching research to expert judgment on the data collecting instrument. Among the group are, Mr. Onuonga Odhiambo, Mr. Kipkirui Rono, Mr. Otundo Vincent, and Mrs. Awino Nancy. I also want to recognize my colleagues for the immense support they gave me during our class discussion. I also wish to appreciate the county government of Bomet for the support they gave during the collection of data. I also acknowledge the national government, through the county commissioner's office for the great support they gave us. I also do appreciate the members of the community where the project was undertaken, Bomet Township.

TABLE OF CONTENT

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGMENT	iv
TABLE OF CONTENT	v
LIST OF TABLE	viii
LIST OF ABBREVIATIONS AND ACRONYMNS	ix
ABSTRACT	x
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background of the study	1
1.2 Statement of the problem	3
1.3 Purpose of the study.....	4
1.4 Objectives of the study	4
1.5 Research Questions.....	5
1.6 Significance of the Study	5
1.7 Limitations of the Study	5
1.8 Delimitations of the Study	7
1.9 Basic assumption of the study	7
1.10 Definitions of Significant Terms	7
1.11 Organization of the Study	8
CHAPTER TWO	9
LITERATURE REVIEW	9
2.1 Introduction.....	9
2.2 Successful completion of construction projects.....	9
2.3 project management and successful completion of road construction projects.....	10

2.4 Government Policy on successful completion of road project	11
2.5 Information Technology on successful completion of road project	12
2. 6 Influence of Procurement procedures on successful completion of road project	13
2.7 Theoretical literature	15
2.7.1 Theory of Constraints	15
2.8 Conceptual framework	15
2.9 Research gap	16
2.10 Summary of the literature review	17
CHAPTER THREE	18
RESEARCH METHODOLOGY	18
3.1 Introduction	18
3.2 Research Design	18
3.3 Target Population	18
3.4 Sample size and Sample Selection	19
3.4.1 Sample size	19
3.4.2 Sample selection	19
3.5 Data Collection Instruments	19
3.6 Validity of the Instruments	20
3.7 Reliability of the Instruments	20
3.8 Data Collection Procedures	20
3.9 Method of Data Analysis	21
3.10 Operational Definition of Variables	21
3.11 Ethical Considerations	22
CHAPTER FOUR	23
DATA ANALYSIS AND INTERPRETATION	23
4.1 Introduction	23
4.1.1 Response Rate	23
4.2 General Information	23

4.2.1 Gender of the Respondents	24
4.2.2 Age of the Respondents.....	24
4.2.3 Level of Education	25
4.2.4 Working Duration	26
4.3 Project management.....	27
4.3.1 Implementing project management plan	27
4.3.2 Extent of agreement with the following statements in regard to project management on successful completion of road projects	27
4.4 Procurement Procedures	28
4.4.1 Extent of agreement to the following statement in regard to procurement procedures in the ministry of road and transport.....	29
4.4.2 Extent of agreement with the following statements relating to procurement performance in department of road and transport	29
4.5 Information Technology	30
4.5.1 Application of Information Technology on completion of road project.....	30
4.5.2 Extent to which IT influence successful completion of road project.....	30
4.6 Government policy	31
4.6.1 Extent of agreement with the following statements regarding to government policy on successful completion of road project.....	31
CHAPTER FIVE	33
SUMMARY OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS	33
5.2 Summary of the Findings.....	33
5.3 Conclusions.....	34
5.4 Recommendations.....	34
5.5 Recommendation for further study	34
References.....	36
APPENDICES	39
Appendix I: Questionnaire	39

LIST OF TABLE

Table 4. 1: Response Rate.....	23
Table 4. 2: Gender Composition.....	24
Table 4. 3: Respondents Age	25
Table 4. 4: Level of Education.....	26
Table 4. 5: Working Duration.....	26
Table 4. 6: Project management.....	27
Table 4. 7: Implementing project management plan	27
Table 4. 8: Extent of Agreement on project management on timely completion of road projects.....	28
Table 4. 9: Extent of agreement on procurement procedures in the ministry of road and transport	29
Table 4. 10: procurement performance in department of road and transport	30
Table 4. 11: Application of Information Technology on completion of road project	30
Table 4. 12: Extent of agreement on IT and successful completion of road project	31
Table 4. 13: government policy	31
Table 4. 14: Extent of agreement on Information Communication Technology.....	32

LIST OF ABBREVIATIONS AND ACRONYMS

GOK	Government of Kenya
MDG	Millennium Development Goal
ADB	African Development Bank
KeNHA	Kenya National Highway Authority
KeRRA	Kenya Rural Roads Authority
KIHBT	Kenya Institute of Highway and Building Technology
KTSSP	Kenya Transport Sector Support Project
KURA	Kenya Urban Roads Authority
TOC	Theory of Constraints
MTEF	Medium Term Expenditure Framework
MoRPW	Ministry of Roads and Public Works
IADB	World Bank, Inter-American Development Bank

ABSTRACT

Various organizations have used project management techniques as a means of bridging the gap between failure and success in timely completion of projects. Despite this increasing awareness of project management, by organizations, projects still fail to complete in time. There are many challenges that impede on successful project completion in terms of time, cost and quality and unless these challenges are properly mitigated, project completion will continue to be a challenge. The main objective of the study was to establish the challenges facing successful completion of road projects in Bomet Township. The study targeted the projects' implementers. Secondary data was obtained from contract agreements, contract management reports and payment documents. Primary data was obtained from questionnaire survey. 180 respondents was targeted and 55 was sampled for the study and 45 responses received. Primary survey data was analyzed using SPSS. The study found out project management statistically was seen to have the most significant relationship with successful completion of road construction projects in Bomet Township. The study recommends that organizations to provide top management support for both technical and operational staff in the field of project activities. The researcher recommends further research to investigate the other factors that affect timely completion of road project. Equally, further research should be carried out in other Counties to ascertain whether these findings are universal.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

A project is generally considered to be successfully implemented if it comes in on-schedule, comes in on-budget, and achieves basically all the goals originally set for it and is accepted and used by the clients for whom it is intended. It is, therefore, reasonable that any assessment of project implementation success should include these four measures. Research has found that there are many factors that impede on successful completion of projects on time, budget and quality. Delay is generally acknowledged as the most common, costly and complex problem encountered in construction projects and there is need to understand major delay factors and put appropriate mitigation measures that counter possible delays Greer (2009).

Globally, infrastructure is an important factor in the development of a nation through its direct and indirect contributions to economic growth. According to a World Bank initiated study by Kessides (2004) the following three factors of infrastructure fosters economic growth: infrastructure directly or indirectly reduces costs in the production process, infrastructure induces structural change which influences production and consumption trends; and infrastructure contributes to sources of income and better income levels

The construction industry is very important in the economic development of any nation especially in developing countries such as in expanding economy like in Sub Saharan countries (Ibironke, 2008). An efficient construction sector is a pre- requisite to effective national development since building civil and industrial engineering works are usually a major contributor to Gross Fixed Capital Formation, Gross Domestic Product and National Employment (Oyewobi & Ogunsemi, 2010). The growth of construction industry in Nigeria in the past two decades indicates its success in greatly contributing to the country's Gross National Product, which was 1.72 in year 2007 (Federal Bureau of Statistics). Aminudin (2006) stated that up to 30% of construction is rework, labour is used at only 40% to 60% of potential efficiency and at least 10% of materials are wasted. It was posited that rework costs could be significantly higher than figures reported in the previous literature (Love & Smith, 2006). Measuring

Infrastructure contributes to the development of other sectors and industries, notably agriculture. It is widely acknowledged that the contribution of infrastructure to halving income poverty or Millennium Development Goal (MDG) One is more significant than the other goals (Willoughby, 2004). Infrastructure also affects non-income aspects of poverty, contributing to improvements in health, nutrition, education and social cohesion. For example, roads contribute significantly to lowering transaction costs (MDG One), raising girls' school attendance (MDGs Two and Three), improving access to hospitals and medication (MDGs Four, Five and Six), and fostering international connectivity (MDG Eight). Taken in this context, infrastructure makes valuable contributions to all the MDGs Willoughby (2004). According to Ndulu (2006) the vital role of infrastructure services in growth has been reinforced by subsequent research, especially that focusing on Africa's economic performance. Because of infrastructure importance, countries continue to invest to increase the effectiveness of their infrastructure in meeting the demands of the nation.

In Kenya like other countries construction industry is one of major industry contributing significantly to the socio-economic development growth. Achieving project completion on time, within budget, at specified quality standards, and most importantly without unprecedented cost escalations is major criterion of success of project Nunda (2002).

Kenya has invested heavily in infrastructure and according to the Road Sector Investment Plan 2010-2024 the Government of Kenya (GoK) has allocated significant resources toward improvement of transport infrastructure. For instance, transport sector budgetary allocation as a share of total Government expenditure increased from 9.5 percent in FY2004 to 14 percent in FY2010. The increased allocation in the original and actual expenditure was in line with Government commitment and recognition of the country's infrastructure including roads, airports, ports, energy generation and supply as being the foundation of the Kenya Vision 2030. The Vision 2030 is the development blueprint which aims to transform Kenya into a newly industrializing, middle-income country providing a high quality life to all its citizens by the year 2030. The Vision aspires for a country firmly interconnected through a network of roads, railways, ports, airports, water and sanitation facilities and telecommunications (African Development Bank, 2009). Despite the importance, economic and social value of reliable and efficient infrastructure, many infrastructure projects in Kenya have experienced delays in timely completion.

The economic benefits of improved rural transport infrastructure stem largely from enhanced access to markets. Improved roads reduce transport and input costs, increase

timely input availability and consequently can result in higher agricultural productivity (Stifel and Minten 2008; Gollin and Rogerson 2010), greater nonfarm production and lower poverty (Khandker et al. 2009). Better integrated markets also contribute to dampening of seasonal price fluctuations (Moser et al. 2009) and reduce price variability caused by local shocks (Butler and Moser 2010). The County Government of Bomet recognizes the importance of infrastructure in accelerating economic development and as a key pillar to a sound business environment. It also contributes to poverty reduction through employment and wealth creation by facilitating mobility of people, goods and services. The roads traverse rich and expansive agricultural lands that produce tea, coffee, milk and flowers and vast natural forests with rare species of plants and animals that provide potential investment in tourism industry. The county allocate expenditure summary for the FY 2014/2015 and projections for FYs 2015/2016 and 2016/2017. For FY 2014/2015 the estimate is 446.5 Million which is 10% of total allocation to development and is expected to increase in subsequent years. Vision to have high quality, accessible, sustainable and efficient county road network and public structures Mission to design, construct, maintain and manage county road networks and public structures for socioeconomic development.

1.2 Statement of the problem

Many road contractors have failed or perform minimal in their performance, particularly in maintenance of road. The criticism against their performance has attracted the government attention forcing it to come up with performance contract and even settling the authority to oversee the contractors' performance. In addition, performance measurement systems are not effective or efficient to overcome this problem. Road contractor's performance problem appears in many aspects, ranging from fail in time performance, cost performance and others fail in other performance indicators. Ugwa and Haupt (2007) opined that the failure of any road contractor is mainly related to the problems associated with resource management and even political interferences". Moreover, there are many reasons and factors which attribute to such this problem.

Development Budget.¹² Over the period of study, 1963-2011, new road development budget on average represents 15.2% of the total central government is development budget, compared to Ogres of 5.5%, 5.7% and 6.5% for expenditures in education, health and water, respectively. Unlike other forms of development expenditure (e.g., schools and water) that derive in large part from local village funding (called harambee funding in Swahili), funding for road expenditure is almost entirely provided by the central

government. Although the government of Kenya sets aside huge sums of money to be spent in construction sector, the industry is facing a lot of challenges such as the expenditure exceeding the budget, delay to complete the project in time, the building defects and over-reliance on foreign workers. Most construction projects especially road infrastructure in Kenya are exposed to extreme cost escalation menace to the extent that it calls not only for extra funding but also specialized expertise hence leading to technical and project managerial conflicts between project's parties

Empirical studies have identified and documented various factors that have contributed to successful completion of various projects. Karimi (2008) focused on factors contributing to cost overruns in projects under the Ministry of Water. Talukhaba (2008) investigated on time and cost performance of construction projects.

Wachira, S. G, (2012) carried a study on project management practices and completion of road projects by Kenya National Highways Authority where he found out that average ratio of actual completion time to the planned contract duration is 160.5% for road works however none has carried out a specific study focusing on the factors influencing successful completion of road projects on County based hence this study therefore intends to bridge this gap by establish factors influencing successful completion of road construction projects with reference to Bomet Township.

1.3 Purpose of the study

The main purpose of the study was to determine factors influencing successful completion of road construction projects Bomet Township.

1.4 Objectives of the study

1. To evaluate the influence of Government Policy on successful completion of road construction projects Bomet Township
2. To determine the influence of procurement procedures on successful completion of road construction projects Bomet Township
3. To ascertain how project management influence successful completion of road construction projects Bomet Township
4. To examine the influence of Information technology on successful completion of road construction projects Bomet Township

1.5 Research Questions

1. To what extent does Government Policy influence successful completion of road construction projects Bomet Township?
2. How does procurement procedure influence successful completion of road construction projects Bomet Township?
3. How does project management influences successful completion of road construction projects Bomet Township?
4. To what extent does information technology influence successful completion of road construction projects Bomet Township?

1.6 Significance of the Study

The finding of the study was of great significance to the ministry of roads and other ministries. By using analyzed results, executives in the ministries were in a better position to understand the challenges facing timely completion of road projects in Kenya. Secondly, project beneficiaries are deprived of the benefits that would have accrued from timely completion of the project

The findings of the study would (a) help inform policy makers on key issues that had implications on road construction projects, (b) provide critical feedback to the World Bank management that informed decision making, and (c) share knowledge with other researchers interested in this area.

1.7 Limitations of the Study

During the research, information gathering was conducted by queries on staff members under the ministry of roads and transport and some challenges were expected during the exercise. Unwillingness to reveal information by respondents was anticipated. However, this was mitigated by, sensitizing the respondents by presenting an introductory letter with an explanation on the purpose of the research and declaration of confidentiality of information to be collected which was solely used for academic purposes before administering the questionnaire.

Cases of respondents lacking interest in filling the questionnaire were also anticipated. A brief interview was conducted (with the respondents) to avoid lack of cooperation. The instrument was structured in a user-friendly simplified manner.

1.8 Delimitations of the Study

The research study was limited to the Ministry of Roads and Transport in Bomet County. The study specifically focused in Bomet Township on factors influencing successful completion of road projects

1.9 Basic assumption of the study

In this study the researcher made the following assumptions:

1. That the respondents would give correct and accurate information.
2. That the sample selected would have the true characteristics of the entire population.

1.10 Definitions of Significant Terms

Completion of road project: refers to process through which a project is systematically completed at the required time frame

Procurement procedures: The acquisition of goods, services and/or infrastructure at the best possible total cost of ownership in the right quantity and quality, at the right time, in the right place for the direct benefit or use of governments, corporations or individuals, generally via a contract.

Project management is the discipline of planning, organizing, motivating, and controlling resources to achieve specific goals.

Information technology is a term that encompasses all forms of technology used to create, store, exchange, and use information in its various forms (business data, voice conversations, still images, motion pictures, multimedia presentations, and other forms, including those not yet conceived)

Road a long, narrow stretch with a smoothed or paved surface, made for traveling by motor vehicle, carriage, etc., between two or more points; street or highway.

1.11 Organization of the Study

The study was organized into five chapters and appendices: Chapter one presents background of the study, statement of the problem, purpose of the study and objectives, moreover it also features research questions, significance of the study, limitation, basic assumption, definition of terms and organization of the study. Chapter two comprises of literature review, theoretical review, conceptual framework, research gap and summary of literature review. Chapter three describes in detail the methodology followed in this research study. Chapter four was analysis and findings of the study as set out in the research methodology. Chapter five summarized the findings from chapter, gives conclusion and recommendation of the study with reference to the topic of study

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the views of researchers, scholars, academicians and various literatures both empirical and theoretical concerning factors influencing successful completion of road construction projects in Bomet Township. It also contains theoretical framework and conceptual framework of the study

2.2 Successful completion of construction projects

According to Greer (2009), a project is successful if it satisfies all three legs of the triple constraint, namely, performance (specification), cost and time. Thomsett (2012) in an extensive examination of 20 failing projects over a period of 18 years expanded this criteria of success as: “satisfies stakeholder groups, meets functional requirements, meets quality expectations and requirements, within cost, within deadline, delivers sustained and actual benefits and provides the team with professional satisfaction and learning”.

Although the causes for project success and failure have been the focus of numerous research studies, there has been no consensus on the issue. Pinto and Slevin (2007) argue that in spite of extensive research there has been limited convergence on the components and causes of project success.

The word success when applied to projects is very illusive. De Wit (2008) and many other researchers make a distinction between project success and project management success. For instance, they contend that project success is measured by comparing the project outcomes to the overall objectives of the project; whereas project management success tends to be measured against the traditional measures of performance, namely, cost, time and quality. Moreover, a further distinction is made between project success criteria and project success factors. In De

Wit’s (1988) view, success criteria refer to the measures by which success or failure of a project or business will be evaluated; whereas success factors are those inputs to the management system that lead directly or indirectly to the success of the project or business. Cooke-Davies (2012) in a study of 136 European projects executed between 2013 and 2014 by a total of 23 organizations found that there was a strong correlation between schedule

delay and cost escalation. However, cost escalation was not primarily caused by simply a schedule delay but due to a lack of a mature scope change process.

It was also found that delivering project success is more difficult than delivering project management success, because it predictably involves aspects which may be beyond the control of the project team.

2.3 project management and successful completion of road construction projects

There is a strong relation between project management and project performance. Management in construction industry is considered as one of the most important factors affecting performance of works. Brown and Adams (2006) studied a new approach to the measurement of the effect of Building Project Management (BPM) on time, cost and quality outputs using 15 'cases' derived from UK data. The evaluation undertaken demonstrates that BPM as it is presently implemented in the UK fails to perform as expected in relation to the three predominant performance evaluation criteria; time, cost and quality. Lehtonen (2001) obtained a model for performance measurement which assist both firms' top management and operational managers for continuous feedback on operational activities. Thomas (2002) stated that documenting and archiving performance data could be useful for future reference, such as for settling disputes on claims, and in maintenance and repair works. Kuprenas (2003) remarked that quantification of the impacts of the project management processes are identified through three steps of analysis: comparison of summary statistics of design performance, proof of statistical significance of any differences and calculation of a least squares regression line of a plot of design performance measurement versus amount/application of project management as a means to quantify management influence to design phase cost performance.

Cheung et al (2004) studied the project performance related to project managers. It is remarked that development of a Web-based construction Project Performance Monitoring System (PPMS) can assist project managers in exercising construction project performance indicators and can help senior project management, project directors, project managers, etc., in monitoring and assessing project performance.

Pheng and Chuan (2006) stated that while project management is only one of the many criteria upon which project performance is contingent, it is also arguably the most significant as people formulating the processes and systems who deliver the projects. Ugwu and Haupt (2007) stated that an adequate understanding and knowledge of performance are

desirable for archiving managerial goals such as improvement of institutional transformations, and efficient decision making in design, specification and construction, at various project-level interfaces, using appropriate decision-support tools. Ling et al (2007) investigated project management (PM) practices adopted by Singaporean construction firms. It was determined the performance level of their projects in China; identifies PM practices that led to better performance; and recommended key PM practices that could be adopted by foreign construction firms in China to improve project performance.

Success of construction projects depends mainly on success of performance. Many previous researches had been studied performance of construction projects. Dissanayaka and Kumaraswamy (2009) remarked that one of the principle reasons for the construction industry's poor performance has been attributed to the inappropriateness of the chosen procurement system. Reichelt and Lyneis (2009) remarked three important structures underlying the dynamic of a project performance which are: the work accomplishment structure, feedback effects on productivity and work quality and effects from upstream phases to downstream phases.

2.4 Government Policy on successful completion of road project

According to IPAR (2009), there exists lack of consensus about the goals of projects in Kenya. It is observed that a wide disparity exists in the development status of the people due to lack of equity in project policy systems. Allocation equity which is an elusive goal demands that resources should be shared fairly but in Kenya, the powerful elites tend to have undue influence on the allocation of project resources. An enormous gap exists between available resources and increasing demand for access to interventions. Policy formulation and implementation calls for hard choices and using the best information available to design strategies that maximize effectiveness and efficiency. Policy makers have to confront the reality of severe resource constraints.

Government has the ultimate responsibility to provide access to services and to ensure that public –private partnership does not alter the basic responsibility of government. According to Kelechi

(2004), Policy making requires a strong legitimate institutional structure for decision making and policy enforcement. Kelechi further observes that policy formulation, among other things, requires a strong representative government which is seen as legitimate and relevant to the masses which will result in a strategy for domestic revenue mobilization through acceptable taxation policies that the citizen will be willing to comply with because

they appreciate and relate to it. It also requires that policies be made on the basis of strategic options and choices be rooted in the states realistic efforts at internal resource mobilization. In Kenya, policy formulation process influences environmental exploitation, considerations of indigenous perspectives, creation of educational awareness, empowering of the beneficiaries, capacity building, considerations of consumer interest and local peoples' involvement in decision-making Ling et al (2007). All the above have either direct or indirect influence on the timely delivery of construction projects.

2.5 Information Technology on successful completion of road project

Information technology technique is very important in the entire world. Information technology (IT) opens new visions in the businesses and industries performance of the world. The construction industry is considered as one of the industries using IT technique such as software management systems, database and communications. For many years, many processes, functions, operations were done difficulty because of absence of IT field. In addition, most of the work was done manually which lead to more cost, time and poor performance. Furthermore, IT usage in the construction industry leads to many changes, innovations and developing in many aspects which lead finally to good and strong performance. There are many benefits and relations of using IT in the construction projects such as: greater use of IT correlates with better project performance, owners and contractors realize meaningful benefits, IT affects schedule compression beneficially, and overall project cost savings which lead to a success performance of project (Schwegler et al, 2011).

Nitithamyong et al (2008) remarked that information Technology (IT) is now routinely used in the construction industry as a tool to reduce some of the problems generated by fragmentation. The use of IT improves coordination and collaboration between firms participating in a construction project, leading to better communication practices and so good performance. Its benefits include an increase in the quality of documents and the speed of the work, better financial control and communications, and simpler and faster access to common data as well as a decrease in documentation errors.

Thomas (2012) proposed contractor Performance Appraisal and Reporting (PAR) system for reviewing contractor performance at an organizational level. Advancements in World Wide Web techniques provide enhanced capacities to collect compile and disseminate performance-related information to various construction stakeholders in a timely and cost-

effective manner. Becerik (2008) stated that the rapid advances of web-based project management and collaboration technology offer new opportunities to improve existing construction project performance. Cheung et al (2009) obtained framework software to measure project performance based on project performance measurement system (PPMS). The system contains four stages which are data entry, database, reporting and action. This system has eight categories to measure performance which are people, cost, time, quality, safety and health, environment, client satisfaction, and communication. Goh (2010) remarked that information technology management leads to performance improvement in the construction industries. For instance, in Singapore 2009, general administration, design, project management, site management were enhanced by using of IT. In addition, there were more advantages as quick working, good quality of work and fast access of information.

Samson and Lema (2012) found that the traditional performance measurement systems have problems because of large and complex amount of information with absence of approaches to assist decision maker understand, organize and use such information to manage organizational performance. Navon (2011) remarked that traditional project performance control is usually generic (cost control techniques). It relies on manual data collection, which means that it is done at low frequency (normally once a month) and quite some time after the controlled event occurred (not in real-time). Moreover, manual data collection normally gives low quality data.

2. 6 Influence of Procurement procedures on successful completion of road project

Barrons Business Forum (2007) defines procurement as the acquisition of goods, services and/or infrastructure at the best possible total cost of ownership in the right quantity and quality, at the right time, in the right place for the direct benefit or use of governments, corporations or individuals, generally via a contract. Public procurement can therefore be defined as the acquisition of goods, services and/or infrastructure by national, state, provincial or municipal governments on behalf of the whole body politic or all citizens.

Kenya through The Public Procurement and Disposal Act, 2005 created the Public Procurement Oversight Authority (PPOA), the Public Procurement Advisory Board (PPAB) and the continuance of the Public Procurement Complaints, Review and Appeals Board as the Public Procurement Administrative Review Board (PPARB). The PPOA is mandated with the responsibility of (a) ensuring that procurement procedures established under the Act are complied with, (b) monitoring the procurement system and reporting on

its overall functioning, (c) initiating public procurement policy and (d) assisting in the implementation and operation of the public procurement system by (i) preparing and distributing manuals and standard tender documents and (ii) providing advice and assistance to procuring entities. Unfortunately, development partners still find the country systems in the developing countries weak and therefore to guard their interests, they insist on using their procurement guidelines.

It is evident from the discussions above that procurement is an important aspect of the project implementation and has many parties involved namely development partners, government, implementing agencies and contractors. Procurement delays can therefore arise on the projects from various parties involved. The contractors are responsible for the procurement of materials and equipment in all the contracts Cerio, J. Merino-Diaz De, (2003). For multi-contract projects, where the engineer had dual role of designer and supervisor on the civil contracts, many factors interplay leading to delays. On some contracts, there are delays by contractors in releasing of procurement drawings, delays in provision of design information from supply contractors to the engineer's designers to prepare procurement drawings. Delays are also experienced in the tendering system, preparation of the bidding documents and approval by the development partners on the documentation submitted as it has to meet the set standards. The several approval stages in procurement can also lead to delays especially in high-value contracts as they have to go the highest levels for approval. At the World Bank high value contracts are approved by the Regional Procurement Management and might therefore take longer than the low value contracts (McCormick , 2005). Materu (2006) cites that stringent conditions for pre-qualification and tendering, lack of transparency in the procurement of public works, and lack of affirmative policies for the promotion of local contractors as contributing factors to the lack of effectiveness and mediocre performance. In Vietnam procurement procedures were identified as a major issue for three reasons: Due to their complicated, time consuming and costly nature, with the added complication of differing rules for each donor. Due to restrictions placed on local companies that prevented them from participating in bidding. Hence, for instance, some donors would not let state owned enterprises bid if they were connected to the Ministry involved, while contractors could only be from outside the province in which the project would be undertaken. This was felt to exclude those firms with the most appropriate local experience.

2.7 Theoretical literature

2.7.1 Theory of Constraints

The study was based on theory of Constraints. The theory argues that an organization facing challenges in cost management, poor performance and chronic conflicts is as a result of poor management practices and lack of necessary intervention. Eliyahu developed the theory of constraints in the early 1980s to help organizations decide what to change, identify a desirable new condition and how to trigger the change. He recommended first identifying the main factors affecting budget estimates in an organisation. He then suggested that the managers figure out how to handle the constraints or barrier to success within prescribed budget. By focusing on fixing the main problem, overall performance could be improved (Eliyahu, 2004). Additionally, Baloi & Price observed that most organizations fail to examine their operations as a whole when developing cost estimates (Baloi & Price, 2003). By focusing only on short-term goals, long-term success becomes jeopardized so he suggested establishing a long-term view. According to this theory, all systems operate in an environment of cause and effect. One event causes another to happen thus prompting for factors analysis as a measure. Adherence to cost estimates is either a constraint or has the potential to become a constraint. This cause-and- effect relationship can be very complex, especially in complex systems such as those of construction projects. Capturing the essence of cause and effect within the system and identifying factors that emulate these relationships are the keys to system performance and excellent adherence to cost estimates.

2.8 Conceptual framework

Mugenda, (2010) 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. Young (2009) states that conceptual framework is a diagrammatical representation that shows the relationship between dependent variable and independent variables.

Independent Variable

Dependent Variable

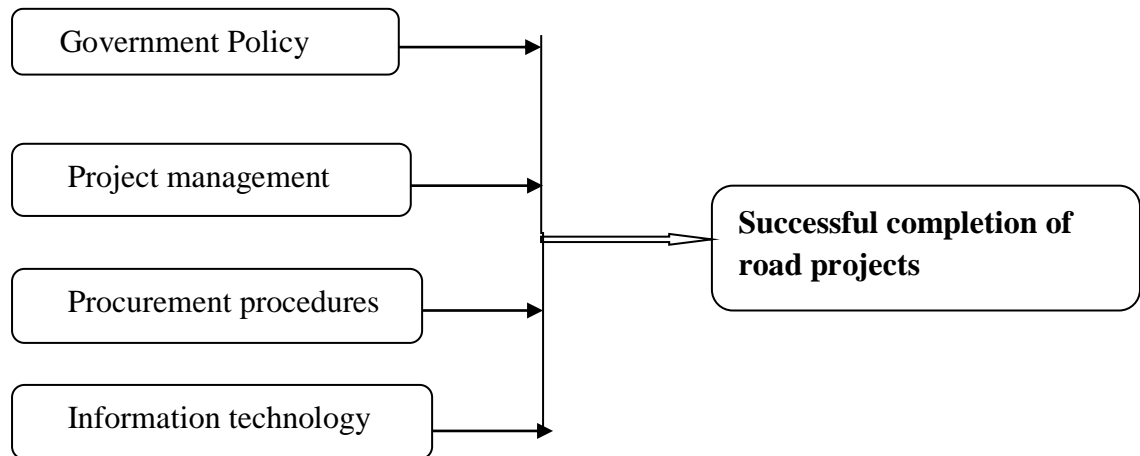


Figure 2. 1 : Conceptual Framework

2.9 Research gap

Many national and international studies have been concerned with how to implement government projects. The elaborate process of project implementation includes a bid process tendering, contract issuance, budgetary allocation/provision, project execution, funding and success of the project. Project management is increasingly recognized as essential in service delivery and it accounts for a high proportion of government tendering. However, it is not clear what the critical success factors of the project management process are since the studies that have been on project implementation did not cover this phenomenon.

UK/USA/Australia (Ireland, 2007) Florida (Ahmed, et al., 2012), and Australia (Ireland, 2010) revealed a trail of time and cost overruns on building and infrastructure projects in public and private sector, attributable to numerous factors that come into play during the projects' implementation. Karimi (2008) focused on factors contributing to cost overruns in projects under the Ministry of Water. Talukhaba (2009) investigated on time and cost performance of construction projects. Majority of these scholars have centered their studies on successful completion of road projects and not on timely completion of road projects.

This study seeks to fill the existing research gap by establishing the factors influencing successful completion of road projects in Bomet Township.

2.10 Summary of the literature review

The chapter started with an introduction and went on to look at predictor variables influencing the timely completion of road projects. Since the variables influencing the organizations timely completion of projects are seen to be quite diverse, the study reviewed specific ones, which are pooled funding, project management, project team training and procurement procedures. The chapter further looked at other key constructs and concepts that are relevant to the study such as concept of timely completion of projects.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The research methodology is discussed under the following sub-topics; research design, target population, sample size and sampling procedure, research instruments, validity and reliability of instruments, data collection and data analysis.

3.2 Research Design

Research design refers to the overall method applied to satisfy the research aim and objective (Holt, 2008)

Kothari (2008) defines a research design as the “arrangement of conditions for collection of analysis of data in a matter that aims to combine relevance to the research purpose”. According to Hindess (2007), in the social sciences methodology is a philosophy, whose function is to examine the research methods, which are used to produce knowledge. In this research, the research design employed was descriptive survey research design.

3.3 Target Population

The target population included the project management and implementation managers in the entire structure of ministry of road and contraction at Boment Township.

The target population can thus be summarized as follows:

Table 3. 1: Target Population

	Target population	Percentage
Top Management	25	13.9%
Middle level management	65	36.1%
Low level management	90	50.0%
Total	180	100.0%

Source: (BC, 2015)

3.4 Sample size and Sample Selection

3.4.1 Sample size

This gives the entire number of the population elements from which data is to be collected. A sample size of fifty-five was selected from a total of one hundred and eighty staff members. The fifty-five staff members take up 30.6 % of the total. The sample size collected was due to availability of the respondents, time and cost of data collection.

3.4.2 Sample selection

Sampling is defined as a technique for selecting a set of components used for analysis from a population (Balnaves&Caputi, 2011). Within this research, the main objective of the sampling plan was to select a representative and non-biased sample to increase the reliability and validity of findings. This was achieved by selecting the various levels of employment these being the top, middle and low level management who are believed to be the best placed to offer the required information for the study.

Table 3. 2: Sample Size

Sections	Population	Sample Ratio	Sample
Top Management	25	0.3	8
Middle level management	65	0.3	20
Low level management	90	0.3	27
Total	180	0.3	55

Source: (BC, 2015)

3.5 Data Collection Instruments

Questionnaires were used as the instrument of data collection. The design of the questionnaire was base on factors influencing timely completion of road projects in Bomet County. The research questionnaires assessed the perceptions of respondents on the various factors identified by the researcher and the relative importance of the factors. The questionnaire comprised of two parts; Part A captured general information of the respondents. Part B focused on factors (independent variables) influencing timely completion of road project sourced from the respondents and those from literature reviewed by the researcher. This part gave each respondent an opportunity to identify variables that they perceive to have influenced completion by responding on a Likert

scale from 1- 5. In this section, the respondent provided their opinions, comments and recommendations.

3.6 Validity of the Instruments

Validity of a questionnaire refers to the extent to which it measures what it claims to measure Mugenda & Mugenda (2008). It is the degree to which results obtained from the analysis of the data actually represent the phenomena under the study. To improve validity, the instrument was pilot-tested among three representatives from each stratum namely the Top Management, Middle level management and Low-level management before distribution.

3.7 Reliability of the Instruments

Mugenda and Mugenda (2009) defines reliability as a measure of the degree to which a research instrument yields consistent results or data after repeated trials. Berg (2010) explains that, the use of consistent and systematic line of questions for even unanticipated areas is particularly important for reliability and for possible replication of a study. The researcher used consistent and systematic questions in the questionnaires. The questions were related to the subject of the study. Of key importance, instruments should be initially piloted to small numbers of respondents to verify whether the questions are easy to understand, appropriate to the research topic, unambiguous Fellows and Liu (2006), and to gain some idea of the time required to administer the questionnaire. It is also important to get feedback and input on other important issues that may be worthy of consideration, that the initial instrument may have missed. This also gives the researcher an indication of whether the instrument is measuring the right concept, hence its validity and reliability.

3.8 Data Collection Procedures

The researcher contacted the relevant authorities in order to be able to carry out data collection from the premises. The researcher also sort appointments with the selected officials in order to book appointments on the day to perform interviews. The semi-structured questionnaire targeted top management, middle level management and the low-level management. The questionnaires was dropped and picked later from the respondents. For the secondary data, use of previous documentations such as journals, articles, magazines e-resources and information from books and magazines available in the libraries

as well as information from the websites was used to support the data collected from questionnaires.

3.9 Method of Data Analysis

Mugenda (2009) observes that data analysis is the process of bringing order, structure and meaning to the mass of information collected. Quantitative data collected through questionnaires will be analyzed and presented in tables and percentages with the help of SPSS program. Palmquist (2011) observes that content analysis is an appropriate procedure for collecting and organizing information in a standard format that allows analysts to draw inferences about characteristics and meaning of recorded material.

Data was analyzed using descriptive statistics. The descriptive statistics help the researcher to describe the data and determine the extent to be used. According to Cooper and Schindler (2006), the findings were presented using tables and charts.

3.10 Operational Definition of Variables

Indicators were denoted by the main variables under the study in order to render them measureable.

Table 3. 3: Operational Definition of Variables

VARIABLE	TYPES OF VARIABLE	INDICATORS	MEASURE	TOOLS OF ANALYSIS
Government Policy	Independent	Allocation of government resources Strong donor collaboration	Effectiveness of the systems Percentage	Descriptive
Project management	Independent	Project implementation Project monitoring	Performance and Value Success	Descriptive
Procurement procedures	Independent	Bid evaluation	Procurement document	Descriptive

Information technology	Independent	software management systems	innovations and developing	Descriptive
Successful completion of road projects	Dependent	Time frame Budget	Percentage	Descriptive

3.11 Ethical Considerations

According to Homan (2002) the five principles guiding ethics in research are scientific merit, equitable selection of subjects, seeking informed consent, confidentiality and avoidance of coercion. The researcher treated the information gathered as strictly confidential information and only used it for academic purposes. In addition, the information given did not disclose the respondents.

Those respondents who are not willing to fill in the questionnaires were not forced

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents analysis and findings of the study as set out in the research methodology. The study findings are presented on to analyze the determine factors influencing successful completion of road construction projects Bomet Township. Data was gathered exclusively from the questionnaire as the research instrument. The questionnaire was designed in line with the objectives of the study.

4.1.1 Response Rate

The sample of the study comprised of 55 respondents. The research instruments were administered to the respondents who later on returned all duly filled instruments. Out of 55 questionnaires that were administered, 45 were duly filled and returned. This was a response rate of 81.8% as displayed in table 4.1. This commendable response rate was made a reality after the researcher made personal visits to remind the respondent to fill-in and return the questionnaires.

Table 4. 1: Response Rate

Response	Frequency	Percentage
Responded	45	81.8
Not responded	10	18.2
Total	55	100

Source: Research Data (2016)

4.2 General Information

As part of the general information, the research requested the respondents to indicate their gender, age, level of education and duration of working. The analysis relied on this information of the respondents so as to categorize the different results according to their acquaintance and responses.

4.2.1 Gender of the Respondents

The study sought to find out the gender of the respondents. From the findings as shown in table 4.2, 54% of the respondents were male while only 46% of the respondents were female. This response indicates that there was a near equal distribution of gender hence the survey did not suffer gender biased.

Table 4. 2: Gender Composition

Gender	Frequency	Percent
Male	30	54
Female	25	46
Total	55	100

4.2.2 Age of the Respondents

The respondents were required to indicate their age where the study findings indicated that majority (44%) indicated that their age bracket was between 31 and 40 years. Analysis of findings also indicated that 28% of the respondents were between 18 and 30 years of age. The findings further indicated that 19% were 41 and 50 years of age while 9% were over 50 years of age.

Jensterand Hussey (2008) in their study of Determining Strategic Capability in organizations associated age with employee efficiency in service delivery where they indicated that there is a positive correlation between age and employee performance. He argued the older an employee was the higher the performance up to a certain age where performance would start declining. He therefore presented this relationship using a sigmoid curve.

The finding therefore implies that the respondents were old enough to provide valuable responses that pertain to factors influencing successful completion of road construction projects in Bomet Township. The findings of the study are illustrated in table 4:3

Table 4. 3: Respondents Age

Age	Frequency	Percent (%)
18 – 30 Years	15	28
31 - 40 years	24	44
41 – 50 years	11	19
above 50 years	5	9
Total	55	100

4.2.3 Level of Education

The study sought to find out the respondents level of education in order to ascertain whether academic and professional qualification determined factors influencing successful completion of road projects Bomet Township. The findings of the study are displayed in table 4.4 from the findings, majority (38%) were College level while 31% of the respondents indicated that they had attained university degree in their respective areas of specialization. This high number of respondents with at least college education may be attributed to the fact that the studies targeted the Top management staff, middle level management and Lower level management. The persons who hold the mentioned portfolios are required to have a minimum of a college certificate. The study further indicated that 26% of the respondents were Secondary certificate holders while minority (5%) had attained postgraduate qualifications, which included masters and postgraduate diplomas.

The findings of the study concurs with Ngulube and Tafor (2006) who observed that each state corporation has its own management organization structure with a matching head count budget to support the business and the persons assigned various duties should possess requisite professional and academic qualifications.

From the findings, majority of the respondents had attained academic qualification commensurate with their job designation.

Table 4. 4: Level of Education

Education	Frequency	Percent (%)
Primary and secondary	14	26
Collage	21	38
bachelors degree	17	31
Post graduate	3	5
Total	55	100

4.2.4 Working Duration

The study found it necessary to find out the respondents years in service as staff members to find out the relationship between work experience and successful completion of road project. The findings of the study are displayed in table 4.5. Based on the findings, majority (49%) of the respondents had over 10 years of experience while 32% had between 6-10 years. It was also revealed that 12% of the respondents had an experience of 1-5 years while 7% had an experience of less than 1 year. In a study on the relationship between project management and human capital, (Maria, 2011) found that project completion depends highly on the skills of the human resource handling them.

Table 4. 5: Working Duration

Working duration	Frequency	Percent (%)
Less than 1 Years	3	7
1 - 5 Years	7	12
6 - 10 years	18	32
Over 10 years	27	49
Total	55	100

4.3 Project management

The study sought to determine the effect of project management on timely completion of road project in Bomet County. Young and Jordan, (2008) defines Project management as the process of application of knowledge, skills, tools, and techniques to project activities to meet project requirements.

From the findings as displayed in table 4.6, majority of the respondents 68% indicated that project management plan vary based on size, complexity, risk, and/or sensitivity of the project while the minority 32% disagreed with the statement as indicated in figure.... Therefore, project management is important for accomplishing project goals and objectives (Linda, Kidombo & Gakuu, 2012).

Table 4. 6: Project management

Donor participant	Frequency	Percent
yes	37	68
No	18	32
Total	55	100

4.3.1 Implementing project management plan

Additionally the survey sought to find the level of agreement from respondents if implementing project management plan requires competency in all of the project management knowledge areas. From the findings, 80% of respondents agreed while 20% disagreed as indicated in table 4.7.

Table 4. 7: Implementing project management plan

	Frequency	Percent
Yes	36	80
No	9	20
Total	45	100

4.3.2 Extent of agreement with the following statements in regard to project management on successful completion of road projects

On the extent of agreement with statements relating to project management, majority of the

respondents indicated that Project management is an interrelated group of processes that enables the project team to achieve a successful project as shown by a mean score of 3.0232, The key responsibility of the project manager is to successfully accomplish the project objectives by balancing the competing demands for quality, scope, time, and cost as shown by a mean score of 2.4356, Fundamentally, the project manager must direct the project from its inputs, through its nucleus, to delivery of its outputs as shown by a mean score of 2.3934 and finally project management plan is a fundamental tool for the project manger to deliver the project successfully as shown by a mean score of 2.2295. The findings concur with that of

(Bent, James 2009) that project management is fundamental tool for the project manger to deliver the project successfully. The findings are indicated in table 4.8

Table 4. 8: Extent of Agreement on project management on timely completion of road projects

Statements	Mean	Std Dev.
Project management is an interrelated group of processes that enables the project team to achieve a successful project	3.0232	1.33695
The key responsibility of the project manager is to successfully accomplish the project objectives by balancing the competing demands for quality, scope, time, and cost	2.4356	1.36145
Fundamentally, the project manager must direct the project from its inputs, through its nucleus, to delivery of its outputs.	2.3934	1.54141
A project management plan is a fundamental tool for the project manger to deliver the project successfully	2.2295	1.38315

4.4 Procurement Procedures

Additionally the study sought to find out the effects of procurement procedure on successful completion of road construction project in Bomet Township.

4.4.1 Extent of agreement to the following statement in regard to procurement procedures in the ministry of road and transport

The objective was to determine the extent to which procurement procedures affect timely completion of road project in Bomet central sub-county. From the findings in table 4.6 respondents agreed to the statement that reduced lead-time; increased customer satisfaction and reduction of procurement costs influenced timely completion of road project in Bomet central sub-county as indicated by a mean of 3.8, 3.6, and 4.6 respectively as displayed in table 4.9.

Table 4. 9: Extent of agreement on procurement procedures in the ministry of road and transport

Determinant of Procurement procedures	Mean	Stdev
Reduced lead time	3.8	0.4
Increased customer satisfaction	3.6	0.5
Reduction of procurement costs	4.6	0.8

4.4.2 Extent of agreement with the following statements relating to procurement performance in department of road and transport

On the extent of agreement with statements relating to procurement performance in department of road and transport, majority of the respondents indicated that poor performance results from non-adherence to power processes and procedures as shown by a mean score of 2.4262, Procurement quality and measurement affects timely completion of road projects as shown by a mean score of 2.3279, that procurement planning is a key factor on timely completion of road projects as shown by a mean score of 2.2131, that Procurement strategies affects completion of road project in Bomet central sub-county as shown by a mean score of and finally procurement integrity and transparency is a fundamental tool in procurement performance as shown by a mean score of 2.1921. Findings are indicated in table 4.10.

Table 4. 10: procurement performance in department of road and transport

Statements	Mean	Std Dev.
Poor performance results from non-adherence to power processes and procedures	2.4262	1.647
Procurement quality and measurement	2.3279	1.350
Procurement planning	2.2131	1.292
Procurement strategies	2.4820	1.584
Procurement Integrity and transparency	2.1921	1.435

4.5 Information Technology

4.5.1 Application of Information Technology on completion of road project

The study requested the respondent to indicate whether they apply IT in their operation as a mean of improving their performances. Unanimously, that is 100% of the respondents“ indicated that apply IT in their operation as a mean of improving their performances. Table 4.11 shows that majority (84%) of the respondents pointed that IT ease the process and procedure of operation while 16% indicated that IT does not ease the process and procedure of operation.

Table 4. 11: Application of Information Technology on completion of road project

	Frequency	Percent
Yes	38	84
No	7	16
Total	45	100

4.5.2 Extent to which IT influence successful completion of road project

The study further sought to find out extent to which IT influences successful completion of road project in Boment Township. From the findings majority of the respondents 45% a great extent, 30% to some extent, 20% to low extent while 5% did not agreed with the statement as displayed in table 4.12.

Table 4. 12: Extent of agreement on IT and successful completion of road project

Statements	Frequency	Percent (%)
Great extent	18	45
Some extent	14	30
Low extent	7	20
Not at all	6	5
Total	45	100

4.6 Government policy

The study sought it important to find out the level of agreement on government policy on successful completion of road construction project at Bomet Township, based on the findings majority of the respondents 68% were in agreement that government policy influenced completion of road project while 32% were not in agreement as displayed in table 4.13

Table 4. 13: government policy

	Frequency	Percent
Yes	38	68
No	7	32
Total	45	100

4.6.1 Extent of agreement with the following statements regarding to government policy on successful completion of road project

On the extent of agreement with statements relating to government policy on successful completion of road project, majority of the respondents indicated that Policy making requires a strong legitimate institutional structure for decision making and policy enforcement influence completion of road project as shown by a mean score of 2.426, Allocation equity which is an elusive goal demands that resources should be shared fairly t in Kenya as shown by a mean score of 2.412, that Policy makers have to confront the reality of severe resource constraints as shown by a mean score of 2.3279 and finally In Kenya, policy formulation process influences environmental exploitation as shown by a mean score of 2.2131. Findings are indicated in table 4.14.

Table 4. 14: Extent of agreement on Information Communication Technology

Statements	Mean	Std Dev.
Policy making requires a strong legitimate institutional structure for decision making and policy enforcement	2.426	1.647
Allocation equity which is an elusive goal demands that resources should be shared fairly t in Kenya	2.3279	1.350
Policy makers have to confront the reality of severe resource constraints.	2.2131	1.292
In Kenya, policy formulation process influences environmental exploitation	2.4120	1.584

CHAPTER FIVE

SUMMARY OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter summarizes the findings from chapter, gives conclusion and recommendation of the study with reference to the topic of study that is to determine factors influencing successful completion of road construction projects Bomet Township.

5.2 Summary of the Findings

This study was on factors influencing successful completion of road construction projects in Bomet Township. The findings showed that there was a significant relationship between each of the four independent variables and successful completion of road construction projects. Amongst all the independent variables, project management statistically was seen to have the most significant relationship with successful completion of road construction projects. The findings on government policy further supported early studies, which state that financial difficulties are the major cause of suspension of works in construction projects leading to delay in the timely completion of projects. This study particularly showed that the county lacks proper guideline to implement projects.

The study found out that the county took slightly a long time for funds to be disbursed since the harmonization of disbursement approach between government and the county eats into the projects time and thus contributing to delay of road projects.

Majority of the respondents 68% indicated that project management plan vary based on size, complexity, risk, and/or sensitivity of the project while the minority 32% disagreed with the statement . Therefore, project management is important for accomplishing project goals and objectives (Linda, Kidombo & Gakuu, 2012).

From the findings, 68% agreed that information technology led to greater innovation and tacit skills in the institution

Additionally respondents agreed to the statement that reduced lead-time; increased customer satisfaction and reduction of procurement costs influenced successful completion of road project in Bomet Township as indicated by a mean of 3.8, 3.6, and 4.6 respectively.

5.3 Conclusions

The study concludes that government policy, project management, procurement procedures and information technology positively influenced successful completion of road construction project in Bomet Township.

The study further concludes that procurement costs influenced completion of road project in Bomet Township

Additionally the study concludes that project management statistically was seen to have the most significant relationship with successful completion of road construction projects in Bomet Township

The study also conclude that respondents agreed that information technology led to greater innovation and tacit skills in the institution

Further the study concludes that Government take slightly a long time for funds to be disbursed since the harmonization of disbursement approach between government and the county eats into the projects time and thus contributing to delay of road construction projects

5.4 Recommendations

The study recommends that organization to enhance its commitment to all the factors mentioned in this study, namely; government policy, project management, information technology and procurement procedures. In addition the study recommends that organizations to provide top management support for both technical and operational staff in the field of project activities.

In addition, to avoid delays in supply and provision of services, timelines have to be respected since most projects would have overruns. For the success of the contracts under execution, the management of Bomet Township should ensure that proper mechanisms for project monitoring and evaluation are put in place with the input of procurement personnel and the user department with progress reports thereon escalated for necessary action.

5.5 Recommendation for further study

This study looked at four independent variables (government policy, project management, procurement procedures and information technology) which according the study contributes to successful completion of road construction projects at Bomet Township. The

researcher recommends further research to investigate the other factors that influence successful completion of road project in other Counties.

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APPENDICES

Appendix I: Questionnaire

The purpose of this questionnaire is to gather information on factors influencing successful completion of road project in Bomet Township. The information obtained from the respondents shall be treated with strict confidentiality and shall only be used for the purpose of this academic research. Please provide answers to each question as instructed. Your participation shall be highly appreciated.

SECTION I

PART A

Name of your organization

Job Title

Section A: General Information

1. Gender.....

2. What is your age bracket (Tick whichever is appropriate)

18 - 30 Years []

31 - 40years []

41 – 50 years []

Over 51 years []

3. What is your education level? (Tick as applicable)

Primary and Secondary []

College []

Bachelors’ degree []

Post graduate []

Others-specify.....

4. Years of service/working period (Tick as applicable)

Less than 1 year []

1-5 years []

6-10 years []

Over 10 years []

Section B: Project management

Does project management plan vary based on size, complexity, risk, and/or sensitivity of the project?

Yes []

No []

5. Do you agree that implementing project management plan requires competency in all of the project management knowledge areas?

Yes []

No []

6. To what extent do you agree with the following statements in regard to project management on timely completion of road projects

Use a scale of 1-5, where (1-Not at all, 2-small extent, 3-moderate extent, 4-large extent and 5- very large extent)

Statements					
Project management is an interrelated group of processes that enables the project team to achieve a successful project					
The key responsibility of the project manager is to successfully accomplish the project objectives by balancing the competing demands for quality, scope, time, and cost					
Fundamentally, the project manager must direct the project from its inputs, through its nucleus, to delivery of its outputs.					
In order to effectively manage responsibilities and assume the roles, a project manager must have experience in project integration, scope, time, cost, quality, human resources, communications, risk, and procurement management.					
A project management plan is a fundamental tool for the project manger to deliver the project successfully					

7. In your own opinion, what should project managers undertake to ensure that projects are completed in a timely manner?

.....

.....

.....

Section C: Procurement Procedures

To what extent do you agree with the following determinants influence Procurement procedures in the ministry of road and transport ?

Use a scale of 1-5 where 1= Very great extent and 5= Not at all

Determinant of Procurement Performance	1	2	3	4	5
Reduced lead time					
Increased customer satisfaction					
Reduction of procurement costs					

Please indicate the extent to which you agree with the following statements relating to procurement performance in department of road and transport. Use a scale of 1-5, where (1-Not at all, 2-small extent, 3-moderate extent, 4-large extent and 5- very large extent)

Procurement Performance	1	2	3	4	5
Poor performance results from non-adherence to power processes and procedures					
Procurement quality and measurement					
Procurement planning					
Procurement strategies					
Procurement Integrity and transparency					

SECTION D: Government Policy

(i) Does government policy affect successful completion of road construction project?

Yes []

No []

To what extent do you agree with the following statements regarding government policy relation to completion of road construction project?

Use a scale of 1-5, where (1-Not at all, 2-small extent, 3-moderate extent, 4-large extent and 5- very large extent)

Statements	1	2	3	4	5
Policy making requires a strong legitimate institutional structure for decision making and policy enforcement					
Allocation equity which is an elusive goal demands that resources should be shared fairly t in Kenya					
Policy makers have to confront the reality of severe resource constraints					
In Kenya, policy formulation process influences environmental exploitation					

In your own opinion what should the county government undertake in changing the attitudes towards delays?

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SECTION E: Information Technology

Does your organization apply information technology on its performance?

Yes []

No []

If yes, does the state of your organization IT ease the process and procedure of operation?

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To extent does IT affect performance of your organization during project construction?

To a very great extent []

To a great extent []

To a moderate extent []

To a low extent []

To a very low extent []

