Assessment of Factors Affecting the Completion of Outsourced Road Construction in Addis Ababa:The Case of Lamberet-Kotebe Kara Road Construction Project

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A thesis Submitted to College of Business and Economic of Addis Ababa University in partial fulfillment of the requirements for the Degree of Master of Arts in Development Management

September 2021

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September 2021

Addis Ababa

Declaration

I, Waktola Amante Sanbe, declare that this work entitled "A**ssessment of factors affecting the completion of outsourced road construction in Addis Ababa. ("the case of lamberet-kotebe kara road construction project)"** is outcome of my own effort and study and that all sources of materials used for the study have been duly acknowledged. I have produced it independently except for the guidance and suggestion of the research advisor. This study has not been submitted for any degree in this university or any other university. It is offered for the partial fulfillment of the degree of masters in development management.

By: Waktola Amante

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Date_____

Advisor: Dr. **Frehiwot Gebrehiwot**

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By: Waktola Amante Under the supervision of: Frehiwot Gebrehiwot (PhD)

APPROVED BY BOARD OF EXAMINERS

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Advisor	**Signature**
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Internal Examiner	**Signature**

Acknowledgement

My first and Greatest Glorious thank is for Almighty God in the Name of Jesus that has helped me in the course of my life.

I am indebted to all who encouraged me in the process of conducting this research and gave me the courage when I was really in need. It is a pleasant aspect that I have now the opportunity to express my gratitude for them I would also like to extend my special thanks to my family and my friends for their moral support and encouragement.

My next heartfelt gratitude goes to my advisor Dr. Frehiwot Gebrehiwot, my advisor, for all her guidance, insightful comments, patience, and encouragement throughout the process of the research.

Next special appreciation goes to my beloved wife, Ayantu Eba for her encouraging throughout during my studies without which it would have been difficult to succeed.

Finally, my special thanks go to Fasika Libay & Eng Tadele Dendena, contractors and consultants working with the authority for their immeasurable support in providing necessary data and documents beside to completing questionnaires.

Waktola Amante

November 2021, Addis Ababa, Ethiopia.

Abstract

This study assessed factors that affect completion of outsourced road construction in Addis Ababa; the case of Lamberet Kotebe Kara Road construction project. This research study therefore further, seeks to assess the factors that were affects or influence successful completion of road construction projects, that stakeholder will need to address. The researcher followed quantitative approach, cross-sectional research design, survey method and questionnaire as data collection instrument. Respondents were selected purposely. 60 Questionnaires were distributed of which 54 usable responses were returned. Using SPSS 20 software regression was done. The analysis result showed that 0.454 units leadership and 0.58 design change have significant impact on road completion (performance). However, Resource was not significant. The coefficient of design is positive and statistically significant effect on performance. For every unit increase in design change a 0.58 unit increase in performance is predicted, holding all other variables constant. Major factors that affect timely completion of outsourced roads are frequent changes of road design and leadership. The researcher concluded project leadership and design change are the reasons for the delay of road construction project in Addis Ababa.

Key words: project completion, design change, leadership

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List of Abbreviations/acronyms

- **AACRA- Addis Ababa City Road Authority.**
- **DV – Dependent Variables.**
- **ECWC- Ethiopian Construction Works Corporation.**
- **ISIC – International Standards Industrial Classification.**
- **IV – Independent Variables.**
- **IPMA- International Project Management Association.**
- **MoFED- Ministry of Finance &Economic Development.**
- **PM – Project Manager.**
- **PMI – Project Management Institute.**
- **RDT -Resource Dependency Theory.**
- **SPSS – Statistical Package for Social Science.**
- **TMT -Top Management Team.**
- **TMTT -Top Management Team Theory.**
- **WBS – Work Base Schedule**

CHAPTER ONE

Introduction

1.1 Background of the Study

Road construction is an important economic sector that drives a country's national economy. The construction industry contributes significantly to economic and social development in both developed and developing countries. This construction industry fluctuates with the general economy, and it responds quickly to changes in the economy (Abdullah Alhomidan, 2013).

The construction industry is one of the major industries that contribute significantly to any country's economic growth. It is massive, complex, and necessitates massive capital investments. Delays in construction project completion are one of the most serious issues confronting the construction industry, and they can be a major issue for construction project participants, leading to costly disputes and strained relationships. Delays occur in every construction project, and the magnitude of these delays varies greatly from project to project. Many studies have been conducted to determine the factors that contribute to project delays in the public construction industry. Any construction project is considered successful when it is completed on time and within budget, with the highest quality and in the safest manner possible, in accordance with specifications, and to the satisfaction of stakeholders (Werku Koshe, 2016).

According to the study conducted on Ethiopian construction industry by Werku Koshe, K. N. Jha, (2016) shows that in Ethiopia only 8.25% projects have been finished to the original targeted completion date. According to this study, the remaining 91.75% delayed off its contractual time. In regard to Addis Ababa Road construction, delay is becoming the major challenges that the authority is facing and challenging the life of the residents.

The construction industry is the bedrock upon which economic development is built. Kenny (2007) asserts that the "construction sector's role in economic development is undeniable." Because of its importance, governments all over the world have invested heavily in it over the years. As the world's oldest engineering division, construction processes and practices have evolved over the centuries. According to Kenny (2007), construction technology has advanced dramatically over the last 100 years, paving the way for modern buildings and scientific designs.

Leesard (2011) aptly stated that "large engineering projects are important not only because they transform the physical landscape and change the quality of human life, but because they are the crucibles in which new forms of life emerge." Now, over the last few decades, there has been a growing emphasis on improving practices and quickly contributing to society's growing needs. According to Ellis and Thomas (2003), it is a significant annoyance to the public when important projects are not completed on time and when actual construction takes longer than necessary, prolonging the inconvenience.

Poor project design, change orders, and weather were identified as the primary causes of project delays in Jordan by Al-Momani (2000). Change orders are design changes made during the construction process by the owner or his agent. Over the last few years, much emphasis has been placed on efforts to identify potential causes of construction project delays and, as a result, to facilitate project management teams' efforts to address these potential delays. A previous study, for example, conducted a survey of architects, engineers, and contractors to investigate the causes of building project delays in the United States.

Many researchers have identified additional causes of project delays in various countries. All delay causes can be divided into two categories: universal causes (such as change orders) and local causes (such as the effects of social and cultural factors) (Assaf&AlHejji, 2006). According to a previous study, the most severe delay causes in various countries are improper planning, public interruptions, resource shortfalls caused by contractor issues or deficiencies in capital, setbacks during the preparation and approval of drawings, contractor financial difficulties, and change orders (Long et al., 2008; Yang et al,). A project's success is defined by its completion within the parameters of cost, time, scope, and quality.

According to Nwachukwu et al. (2010), a road project is considered successful if it meets four success criteria: the time criterion (completed on time); the cost or money criterion (completed within budget); the effectiveness criterion (completed in accordance with the original set performance and quality standards); and client satisfaction criterion (accepted by the intended users or clients, whether internal or external to the organization). However, the road construction industry is littered with projects that were completed at a significant cost, scope, and time. The need for successful road construction project completion stems from the desire for the project to begin serving its intended purpose and thus recouping the investment made. Roads' primary

function is to provide accessibility and mobility. Roads built to expected standards and completed on time and with expected quality add enormous value to development. According to a study (AtifAnsar, Flyvbjerg Bent, Alexander Budzie, and Daniel Lun, 2013), another reason developing countries such as those in Sub-Saharan Africa are more prone to a greater frequency and magnitude of project overruns is inflation and currency exchange volatility, arguing that foreign currency exchange volatility, which is so prevalent in developing countries, can severely impact project cost due to the high reliance on foreign goods for project materials. Indeed, inflationary pressures and their concomitant impact on local currency depreciation are a common theme in Sub-Saharan Africa infrastructure procurement overruns.

The road construction projects in various segments of the city, whether in-house or outsourced, are not completed within the contractual agreement period. Delay is a major manifestation of a road project, and it causes a number of issues for the beneficiary. As a result, the purpose of this research will be to evaluate the factors that influence the completion of outsourced road construction projects in Addis Ababa.

1.2 Statement of the problem

Construction is one of Ethiopia's leading sectors in terms of modernization and industrialization. It is rapidly expanding and playing an important role in the country's development. Buildings, roads, railways, water works, dams, and hydropower construction are all examples of construction projects in the industry. There are issues that cause project delays, poor quality, and overruns. Some of these include a lack of well-trained and professionally qualified staff, an offensive and poor attitude and behavior on project management tasks, and insufficient facilities and equipment. Furthermore, others have been identified as constraints which distinguishes our situation from that of other developed countries in terms of successfully completing the project. Megaproject delivery is an expensive, highly complex task that necessitates a combination of cutting-edge technology and multiparty governance, necessitating high stakeholder commitment and multi-directional project leadership skills (Naomi and Giorgio, 2015). In the case of Ethiopia, some known projects have either been delayed, had cost overruns, were of poor quality, had low user satisfaction, or did not meet the initial objectives (Fetene, 2008; Tekalign, 2014).

Several studies have been conducted to investigate factors influencing project performance in developing countries. According to Faridi and El-Sayegh (2006), construction delays in the United Arab Emirates are caused by a lack of skilled labor, poor supervision and site management, ineffective leadership, a lack of equipment, and other factors. Hanson et al. (2003) investigated the causes of client dissatisfaction in the South African building industry and discovered that conflict, poor workmanship, and contractor incompetence were among the factors that had a negative impact on project performance. According to Mbachu and Nkando (2007), one of the key factors limiting successful project delivery in South Africa is quality and attitude toward service. Corruption, unavailability of utilities on site, inflation/price increases in materials, lack of quality materials, late design and design documents, slow delivery of materials, late in approving and receiving of complete project work, poor site management and performance, late release budget/funds, and ineffective project planning and scheduling are the influential causes of delay, according to Tsegay and H. Luo (2017).

According to Siraw Y. (2014), the most common and frequent factors contributing to time overruns include slow site clearance, material supply, inflation and exchange rate fluctuation, owner progress payment delay, unforeseen site condition, slow equipment movement and material quality, contractor's financial problems, and inaccurate cost estimation. Many local contractors' poor performance has serious implications for their competitiveness (Zulu and Chileshe, 2008). The construction industry is complex due to the large number of parties involved, including owners (clients), contractors, consultants, stakeholders, and regulators. Despite its complexity, the industry plays a significant role in the development and achievement of society's objectives. It is one of the largest industries, accounting for approximately 10% of the gross national product (GNP) in industrialized countries (Navon 2005). Pheng (2006) defined project success as the completion of a project within an acceptable time, cost, and quality while satisfying the client. Project success can be achieved through the performance of project indicators. According to Chan (2002), a construction project is considered successful if it is completed on time, within budget, and of acceptable quality regardless of its complexity, size, or environment. However, construction performance is affected by numerous variables and uncontrollable factors. Construction performance is influenced by party performance, resource availability, environmental conditions, and contractual relationships. Road construction in Africa is a scarce undertaking, and where roads do exist, they are generally in poor condition.

According to Tekalign (2014), 79.1 % of construction projects in Ethiopia fail to meet their objectives, and those that do are completed with an average cost overrun of more than 26.2 %. We must understand that project failures have significant economic and political consequences. If the project takes longer than expected, it necessitates more resources and budgets, which raises labor, material, machinery, and equipment costs. This has an impact on the budgets of other projects, as well as the overall economy of the country, resulting in societal dissatisfaction. This means that projects must be completed within the time frame, budgeted cost, and required quality in order to meet their objectives and satisfy stakeholders and users. The study of critical success factors is a method of improving project effectiveness and efficiency (Makulwasawatudom et. al., 2003; Chanet et al., 2004).

Addis Ababa's city administration is heavily investing in road projects. Some of these activities are clearly carried out by foreign firms. These road projects are being hampered by their inability to be completed on time. Over the last five years, over 20 road projects have been signed with various contractors in various parts of the city, according to data obtained from the Addis Ababa city road authority (2007 to 2012 E.C). The majority of these projects are running past their contractual deadlines. The majority of road projects in Addis Abeba City are not completed within the original contract price and time frame. This research will look into a very common problem that affects almost all road construction projects in Addis Abeba: failure to meet the stated/planned completion date. Clearly, there are factors in the construction industry that have affected the successful completion of road construction projects. Many roads construction projects have been hampered by a variety of issues, causing them to fall behind schedule. Understanding these factors is a major concern for every stakeholder in a road project (Mochal, 2009).

The majority of the few published studies on construction delays in Ethiopia have been conducted on the construction industry as a whole (Werku Koshe, K. N. Jha, (2016) on Ethiopian construction, Wubishet, J. M., (2004) on public construction, Meaza A, (2015) on Ethiopian electricity utility enterprise) and to specific to road construction, a few studies on road construction have taken Addis Ababa city Road Authority as case studies whereas others are based elsewhere. Most of these studies concentrate on one aspect of performance, primarily cost and time, rather than overall performance.

As a result, the primary goal of this study was to identify the factors influencing the completion of outsourced road construction in Addis Ababa. identifying the major factors for road construction lack of timely completion in the study area that could be an input for the next and enable to optimize the timely completion of outsourced road construction projects in a construction industry by providing answers to the following questions

1.3 Research questions

- Does leadership affect the completion of road construction project in Addis Ababa?
- Does resource allocation affect the completion of road construction project in Addis Ababa?
- Does design change affect the completion of road construction project in Addis Ababa?
- What is the relative contribution of the three factors to the delay of road project?

1.4 Objective of the Research

1.4.1 General objective

The purpose of the study is to assess the factors that affect completion of outsourced road construction projects in Addis Ababa; the case of Lamberet- Kotebe Kara road construction Project.

1.4.2 Specific objectives

- To investigate if leadership affects the completion of road construction project in Addis Ababa.
- To investigate if resource allocation affects the completion of road construction project in Addis Ababa.
- To investigate if design changes affect the completion of road construction project in Addis Ababa.
- To determine the relative contribution of the three factors on the delay of the road project.

1.5 Significance of the Study

This study provides insights into the factors that influence the timely completion of an outsourced road construction project in Addis Abeba. Its goal is to help project-delivery organizations become more knowledgeable about the factors by investigating ways to reduce project delays. The importance of identifying issues related to road construction project delays is to provide a better understanding of the causes of delays, particularly among the project's key players: contractors, clients, and consultants. This can be accomplished by putting theoretical concepts discussed in many books into practice in real-world projects. These findings are hoped to guide efforts to improve the performance of road construction projects and to be useful to construction players.

As a result, these findings may encourage practitioners to focus on any delays that may have occurred in their current or future projects. Thus, based on the findings of the study, the responsible parties will devise a strategy to address the factors that contribute to the delay of an outsourced road construction project. Because actively managing these factors is dependent on how clearly the factors are identified as a factor. Furthermore, the study may point the way forward for further research for those who are interested, as well as serve as a reference for future research in this thematic area.

1.5 Scope of the study

Scopes are the limits that a researcher imposes on his or her research (Perry, 2012). The study focused on road construction projects in Addis Ababa due to the broad and complex nature of the construction industry. This research paper's scope is as follows: -

• Variable scope: The study's scope is limited to assessing factors related to leadership, resources, and design for outsourced road projects in Addis Ababa.

• Methodological scope: The researcher used a descriptive and explanatory research design, as well as a quantitative research method and multiple linear regression analysis. The study employed a questionnaire and a document review. Client, consultant, and contractor companies that are directly involved in the project comprise the group of respondents for this study. This would be done using secondary and primary data sources obtained from the Addis Ababa Road

Authority, consultants, and contractors, assuming those involved in road construction in the Addis Ababa city administration.

• Geographic Scope: The study took into account AACRA (contract administration and design department) and a delayed road construction project from Lambert kotobe kara.

• Timeline Scope: In order to obtain relevant information, the study focused on projects completed between February and June 2021.

1.6 Limitation of the Study

The main limitation of the study was the unwillingness of government officials in Addis Ababa to provide necessary documents on outsourced road construction projects, contract documents, and other vital documents. Professionals were frustrated and lacked covid -19 to complete and return the questionnaire, which took far longer than expected. A series of questionnaire briefings were held to encourage respondents to complete the questionnaire because the results are for academic purposes. Furthermore, it is difficult to obtain documents pertaining to delay claims submitted by the contractor and determinations made by the engineer and employer. This has resulted in a severe lack of information for the researcher to conduct a thorough investigation. To that end, it was decided that this research would serve as a springboard for future similar studies.

1.7 Organization of the Study

This research would have been split into five chapters. The first chapter provides background information for the study, as well as a statement of the research problem, research objectives, and research methodology. In addition, chapter one discusses the significance of the study, the scope of the study, the limitations of the study, and the organization of the study. The second chapter includes a theoretical overview, an empirical overview, and a conceptual framework. The third chapter discusses the research paradigm, research design, and field of study, as well as the study's population, sample, and sampling techniques. In addition, this chapter discusses data collection, data types, data collection methods, data processing and analysis, and data validity. The fourth chapter will interpret, analyze, and discuss the data. Finally, in Chapter 5, a summary

of the findings and their implications will be presented, as well as the study's conclusion, recommendations, limitations, and areas for future research.

Chapter Two

Literature Review

Introduction

This chapter provides a review of the literature on factors influencing the timely completion of road construction projects conducted by various scholars. This includes a theoretical and empirical review, as well as a conceptual framework.

2.1. Theoretical Framework

2.1.1 An overview of construction projects

A project is a short-term endeavor undertaken to produce a unique product, service, or result (Project Management institute, 2008). All projects, according to Hillson D., (2009), are risky for three distinct reasons. The first reason is that all projects share features that inevitably introduce uncertainty. Projects are one-of-a-kind, complex, involve assumptions and constraints, are carried out by people, and involve a transition from a known present to an unknown future. The second reason is that each project is undertaken with a specific goal in mind. The final reason is that all projects are affected by the external environment.

A project is a short-term endeavor undertaken to create a one-of-a-kind product, service, or result (Project Management institute, 2008). According to Hillson D., (2009), all projects are risky for three distinct reasons. The first reason is that all projects have characteristics in common that inevitably introduce uncertainty. Projects are unique, complex, involve assumptions and constraints, are performed by people, and involve change from a known present to an unknown future. The second reason is that every project is undertaken to achieve a specific goal. The final reason is that the external environment has an impact on all projects. The Project management Institute (2013: P3) define project as a temporary endeavor undertaken to create a unique product, service, or result. In this study, the PMI's definition of project is used as an operational meaning. Larson and Grey (2011: P5) stated, "Like most organizational effort, the major goal of a project is to satisfy a customer's need. Beyond this fundamental similarity, the characteristics of a project help differentiate it from other endeavors of the organization". The

definition is given based on two key characteristics of project. All projects are temporary and undertaken to create a one-of-a-kind product, service, or result. These two simple concepts create a work environment that necessitates a different management approach than that of an operations manager, whose work is oriented toward the continuous improvement of existing processes over longer time periods.

In contemporary business and science, a project is defined by Wikipedia (2015) as a collaborative enterprise involving research or design that is carefully planned to achieve a specific goal. Projects can also be defined as temporary rather than permanent social or work systems formed by teams within or across organizations to complete specific tasks under time constraints. A program is typically referred to (or evolves into) an ongoing project (Wikipedia, 2015). Many other scholars and books prefer to define and explain projects by describing common project characteristics rather than providing a direct definition so that anyone can define project by integrating these project features. The distinctive features of projects are provided by various scholars. Nicholas and Steyn (2008) provide a comprehensive list of project characteristics.

In simple terms, a construction is the process of building something by humans for a specific purpose. It could be a road, a bridge, a dam, a private residence, an airport, a commercial building, an office, or something else. According to Wikipedia, construction is the process of constructing or assembling infrastructure. Construction is the recruitment and use of capital, specialized personnel, materials, and equipment on a specific site in accordance with drawings, specifications, and contract documents prepared to serve a client's purposes. According to the United Nations (1996) International Standards Industrial Classification (ISIC), Rev. 3, construction is defined broadly as an economic activity directed to the creation, renovation, repair, or extension of fixed assets in the form of buildings, engineering land improvements, and other such engineering constructions as roads, bridges, dams, and so on. The industry is made up of businesses that do one or more of the following: site preparation; building of complete or partial structures, civil engineering; building installation, building completion, and renting construction or demolition equipment with operators.

Australian Bureau of Statistics, the construction industry is described as; all units mainly engaged in constructing buildings (including the on-site assembly and erection of prefabricated

buildings), roads, railroads, aerodromes, irrigation projects, harbor or river works, gas, sewerage or storm water drains or mains, electricity or other transmission lines or towers, pipelines, oil refineries or other specified civil engineering projects. In the case of Ethiopia, although the definition adopted by the National Accounts department of MoFED is the same as that of ISIC, the activities actually covered under the industry are the construction and maintenance activities of: Residential buildings in urban and rural areas, Non-residential buildings, i.e. factory buildings, ware houses, office buildings, garages, hotels, schools, hospitals, clinics, etc., Other construction works, like roads, dams, dikes, athletic fields, electricity transmission lines, telephone and telegraph lines, etc. In principle, activities undertaken by the construction industry which do not fall under the industry such as the quarrying of stone, gravel crushing, and manufacturing of bricks, are not part of the industry's production and hence should, if possible, be allocated to separate group of economic activities. This, however, would not be possible in most cases and hence such output is also included in the construction sector (EEA 2008).

Wikipedia, the free encyclopedia, defines building construction as the process of adding structure with walls to real property or construction of buildings. It further discuses that if these buildings are not designed and constructed by professionals they might lead to undesirable results such as structural collapse, cost overrun and disputes.

Road construction project, like any other project, also faces different risks throughout the life of the project. According to Nafishah B., (2006), this is due to the uniqueness of every project, the uncertainties introduced by the project stakeholders, statutory or regulatory protocols and other intrinsic and extrinsic constraints. He further discusses that risk can constrain the achievement of key project objectives, time, cost and quality. Inability to achieve the project objectives has great consequence on all project stakeholders involved in the construction. For the client it could mean extra cost and less return on investment, for the consultants it could result in loss of confidence placed in them by the clients, for the contractor it could mean loss of profit and bad reputation etc.

Construction time often serves as a benchmark for assessing the performance of a project and the efficiency of the project organization. Timely completion was one indicator for successful project. Often, the time required to complete construction of projects is more than specified time in Contract. That was why in construction projects, delay could be characterized

as the time overwhelm either past consumption date determined in an agreement or past the date that the gatherings settled upon for conveyance of a projects. It is an undertaking slipping over its arranged timetable and was considered as basic issue in construction projects. They quite often result in additional expense and time. Construction project delays also result in conflicts and mistrust among concerned parties (designer, contractor worker, and consultant). (Khattri et al. 2016).

2.1.2 Outsourcing Road construction

Outsourcing is on the rise, and according to Vaia and Oshri (2016), Europe surpassed the United States in the outsourcing industry for the first time in history in 2014. The outcome was explained as the result of managerial teams and project managers working together to find innovative solutions. They selected partners whose collaboration would benefit the organization.

One of the most successful models for guiding management and gaining a competitive advantage is outsourcing.

This term refers to the production of services or goods in collaboration with outside suppliers (Merriam-Webster, 2017). Outsourcing emerged as a phenomenon in international businesses in the 1970s as a neologism. We discovered that outsourcing has several aspects after conducting a thorough investigation. According to Amiti and Wei (2005), Outsourcing as a term was first introduced in the "Journal of the Royal Society of Arts" in 1979 and described the delegation of engineering tasks of German car manufacturers to other smaller firms, who specialized themselves on specific engine parts production and assembly. According to Williamson (2008), who examines outsourcing in relation to the theory of transaction costs, an international business may acquire goods and services either through a complicated hybrid contracting form with other service providers or through a simple form of market economy, selecting the cheapest service price. In other words, we can distinguish several types of relationships that exist between international businesses and their contractors in terms of hybrid contracting with organizational hierarchy and simple market exchange.

It is well known that organizations rely heavily on environmental factors. They must interact with their surroundings and other businesses in order to survive the competition. Political, demographic, and social factors all play a role in their development. Companies choose outsourcers to whom they can delegate their tasks and who can take responsibility for their key

functions both within the country and abroad in order to increase their profitability, quality of production, and sales. Outsourcing is a relatively new term, but it describes a rather traditional phenomenon of distributing processes to different geographical locations or, at the very least, to different contractors within the same region. Outsourcing is influenced by labor costs, global economies, international trade, and other economic issues. Outsourcing as a term is a relatively new phenomenon in international business, having first appeared four decades ago. It first appeared in scientific articles in the 1980s. According to a search of the Science Direct database of scientific publications, the first use of the term Outsourcing was made by Tsurumi (1983) and is devoted to the delegation of production tasks by Japanese car manufacturers in order to meet the needs of American consumers. After 1983, there are several later publications that describe outsourcing, but not in the same volume as in the 1990s. We have counted 21 articles in the year 1990 and till the year 2014 the annual number of publications that are devoted to outsourcing arose till more than 1600 on Science Direct.

As a result, in the last two decades, there has been a dramatic increase in the need to fragment services and goods production on a global scale. Previously, outsourcing was primarily based on contract purchases of a variety of goods on the local market. To comprehend the studied phenomenon of outsourcing, we will refer to the economic articles that define and describe outsourcing.

First of all, it is understood as the usage of external resources instead of own corporate ones. Secondly, it is an efficient managerial model that includes signing the subcontracts on all types of business activities except those on which the company is specialized. Thirdly, this process includes the delegation of several organizational elements to external firms that fulfill the management of these elements and fulfill the specified tasks for concerted remuneration.

Fourthly, it is a new strategy of managing international business. The Wired magazine defined outsourcing as “doing not what you can do best, but what you can buy most profitable” (Shershulsky V., 1999: P 10-14)

In other words, outsourcing is the process of delegating tasks that were previously performed by the same company to other companies. Outsourcing road construction projects entails launching bids and hiring a competent winning contractor. Outsourcing simply means delegating work responsibilities and decision-making authority to someone outside of the

company. Outsourcing is defined as a company contracting with another company to provide services that would otherwise be performed by internal employees (Akinbola 2012). The contracting of a business process to a third-party service provider is what outsourcing entails. According to Maynard (2006), the term "outsourcing" has evolved since 1982 to include all aspects of the business. According to Nicholas Beaumont and AmrikSohal (2004), outsourcing is defined as having work that was formerly done inside the organization performed by an external organization. They also supplemented that the vendor (hereafter the outsourcer and outsource are respectively, referred to as vendor and client) may be an independent entity or a wholly owned subsidiary. According to Beaumont, (2006) outsourcing can be said to be one sub-type of distributed work.In general, outsourcing can be referred to the external delegation of task or job from internal construction to external entity, such as a sub-contractor.

2.1.3. Theory of Constraints (TOC) in Project Management

T The primary challenge of project management is to meet all of the project's goals and objectives while adhering to the project's predetermined constraints. Scope, time, and budget are typical constraints, according to Lamb, Robert, and Boyden (2002). The secondary, more ambitious challenge is to optimize the allocation and integration of inputs required to meet pre-defined goals. In his theory of constraints, Goldratt (1984) asserts that any manageable system is constrained from achieving more of its goals by a very small number of constraints, and that there is always at least one constraint. The Theory of Constraints assumes that the rate of goal achievement is constrained by at least one constraint. The primary challenge of project management is to meet all of the project's goals and objectives while adhering to the project's predetermined constraints. Scope, time, and budget are typical constraints, according to Lamb, Robert, and Boyden (2002). The secondary, more ambitious challenge is to optimize the allocation and integration of inputs required to meet pre-defined goals. In his theory of constraints, Goldratt (1984) asserts that any manageable system is constrained from achieving more of its goals by a very small number of constraints, and that there is always at least one constraint. The Theory of Constraints assumes that the rate of goal achievement is constrained by at least one constraining process. Overall throughput can only be increased by increasing flow through the constraint (Cox, Jeff; Goldratt, Eliyahu) (1986). Internal or external constraints can exist in the system. An internal constraint occurs when the market expects more from the system than it can provide. If this is the case, the organization's focus should be on identifying the

constraint and implementing the five focusing steps to overcome it (and potentially remove it). When the system can produce more than the market will bear, an external constraint exists. If this is the case, then the organization should focus on mechanisms to create more demand for its products or services. Internal constraints are often caused by equipment, people and policies, McKinsey (2001).

2.1.4 Critical Chain Project Management Theory

The Critical Chain Project management is a logistical application of the Theory of Constraints for project operations. It is named after the project's most important component: the longest chain of dependent resourced tasks. The solution's goal is to protect the project's duration, and thus its completion date, from the effects of individual task structural and resource dependency, variation, and uncertainty. The end result is a strong and dependable approach that will allow us to complete projects on time, every time, and most importantly, within 75 percent of the current duration for single projects and significantly less for individual projects within multi-project environments. The shorter duration provides an excellent opportunity in the market to differentiate ourselves from competitors who deliver poorer results, and late at that, through other project management methods. It also provides the opportunity to complete more projects in the same amount of time with no increase in operating expenses, significantly improving the bottom line (Youngman, 2009).

2.1.5 Top management team theory

According to Nyandika&Ngugi, (2014), top management team theory (TMTT) has raised widespread concern in the academic community. Different from traditional strategic management theory, which emphasizes on purely economic and technological processes or information process, TMTT studies the strategic choice and organizational performance determinants from the process of cognitive psychology of top management team (TMT), which overturns the economic man hypothesis in traditional theory and proposes the hypothesis of International Journal of Economics, Commerce and Management, United Kingdom Licensed under Creative Common Page 365limited rationality proposed by the Carnegie school (Müller &Jugdev, 2012). As the cognitive psychological process of TMT is too complicated, TMTT invokes prior marketing research on demography to suggest that managerial characteristics and its heterogeneity (such as age, work experience, educational background, etc.) are reasonable

proxies for underlying differences in cognitions, values, and perceptions process, which could be good predictor to predict organizational outcome (such as strategic choice, organizational performance, etc.), (Nyandika&Ngugi, (2014)). Nyandika and Ngugi, 2014 finally concluded that in relation to this study, the skills and the support of the top management is paramount in the success of development projects. It reduces the timeline of projects as it helps to smoothen the communication process.

2.1.6 Resource Dependence Theory (RDT)

According to Nyandika&Ngugi (2014), resource dependence theory (RDT) is concerned with how organizational behaviour is affected by external resources the organization utilizes, such as raw materials. The theory is important because an organization's ability to gather, alter and exploit raw materials faster than competitors can be fundamental to success. Some commentators encourage organizations to view customers as a resource predisposed to scarcity. Resource dependence theory is underpinned by the idea that resources are key to organizational success and that access and control over resources is a basis of power. Resources are often controlled by organizations not in the control of the organization needing them, meaning that strategies must be carefully considered in order to maintain open access to resources. Organizations typically build redundancy into resource acquisition in order to reduce their reliance on single sources e.g., by liaising with multiple suppliers, (Davis, and Cobb, 2010)

The procurement of external resources is an important tenet of both the strategic and tactical management of any company. Resource dependence theory has implications regarding the optimal divisional structure of organizations, recruitment of board members and employees, production strategies, contract structure, external organizational links, and many other aspects of organizational strategy. Organizations depend on multidimensional resources: labor, capital, raw material, etc. Organizations may not be able to come out with countervailing initiatives for all these multiple resources. Hence organization should move through the principle of criticality and principle of scarcity. Critical resources are those the organization must have to function. For example, a burger outlet can't function without bread. An organization may adopt various countervailing strategies it may associate with more suppliers, or integrate vertically or horizontally, (Hillman, Withers and Collins, 2009). Ogweno, Muturi& Rambo Licensed under Creative Common Page 366Resource dependence concerns more than the external organizations

that provide, distribute, finance, and compete with a firm. Although executive decisions have more individual weight than non-executive decisions, in aggregate the latter have greater organizational impact.

Managers throughout the organization understand their success is tied to customer demand. Managers' careers thrive when customer demand expands. Thus, customers are the ultimate resource on which companies depend. Although this seems obvious in terms of revenue, it is actually organizational incentives that make management see customers as a resource (Boyd,B., 1990).The basic argument of resource dependence theory can therefore be summarized as follows: organizations depend on resources; these resources ultimately originate from an organization's environment; the environment, to a considerable extent, contains other organizations; the resources one organization needs are thus often in the hand of other organizations; resources are a basis of power; legally independent organizations can therefore depend on each other; power and resource dependence are directly linked; organization A's power over organization B is equal to organization B's dependence on organization A's resources; power is thus relational, situational and potentially mutual.

2.1.7 Delay in road Construction Projects

Projects or construction works that are not delivered on time to the client are referred to as projects that have undergone schedule overruns. Assaf and Al-Hejji (2006), defined schedule overruns as the time overrun either beyond completion date specified in a contract, or beyond the date that the parties agreed upon for delivery of a project. Alkhathami (1999) states that schedule overruns can be defined as extra time required finishing a given construction project beyond its original planned duration, whether compensated for or not. Hence, Mohamad (2012) defined schedule overruns as an act or event that extends the time to complete or perform an act under the contract. It is basically a project slipping over its planned schedule and is considered as a common problem in construction projects worldwide. Projects are delayed because the critical activities of the projects are delayed. A delayed critical activity implies that the completion of the activity has been delayed because the activity was started later than expected and/or because the activity required an unexpectedly extensive duration to complete.

2.2. Empirical Review

The construction industry is massive, complicated, and requires massive capital investments. Delays in the completion of a construction project are one of the most serious issues confronting the construction industry, and they can be a major issue for construction project participants, leading to costly disputes and strained relationships. Every construction project experiences delays, and the magnitude of these delays varies greatly from project to project. Many researchers have investigated the factors that contribute to project delays in the public construction industry. For this study, the findings of such studies were reviewed. Remon F. Aziz et al. conducted a study in Egypt to investigate the causes of road construction project delays (2016). The following goals were pursued in this study:

a. identifying the most important and least important causes of delays affecting highway constructions,

b. determining the severity of the delay causes from the perspective of stakeholders.

Through a literature review, 293 delay causes were evaluated using a questionnaire survey and classified into 15 groups. The study also revealed that, based on the overall findings, the owner's financial problems were identified as the primary cause of delays in road projects in Egypt. The study identified the most common delay causes as a lack of equipment, insufficient contractor experience, a lack of materials, equipment failure, design errors, mistakes in soil investigation, poor subcontractor performance, rework due to a change in design, poor site management, and poor contractor supervision. In Tanzania, Kikwasi, G.J. (2012) on its study presented on Conference Series with a title of Causes and effects of delays and disruptions in construction projects in Tanzania indicated seven highly ranked causes as design changes, delays in payment to contractors, information delays, funding problems, poor project management, compensation issues and disagreement on the valuation of work done as the most causes of delays in construction project and the following factors as medium rank: conflicts among the involved parties, project schedule changes, supply / procurement problems, bureaucracy, multiple projects by contractors and incompetent contractors.

2.2.1 Related Studies in Ethiopia

Werku Koshe and K. N. Jha (2016) conducted a questioner survey in Ethiopia to investigate causes of construction delay in order to assess the opinions of clients, design

engineers, consultants, and contractors in order to evaluate the frequency of occurrence and degree of severity of the 88 cause of construction delay factors classified into eight broad categories: client related, consultant/supervisor related, contractor related, designer related, labor related, material related, and other. According to the study's findings, the five most significant factors that cause delays in Ethiopian public building construction have been identified. According to the study results, the five key factors identified for construction project delays were contractor financial difficulties, material price escalation, ineffective planning and scheduling by contractors, delay in progress payments for completed works, and a lack of skilled professionals in construction project management in contractor organization. Wubishet J. M. et al. (2017) conducted a survey and case study on the Causes of Cost Overruns in Ethiopian Federal Road Projects in the Southern District. The study identified six top-rated factors for project cost overruns, which were material price fluctuation, cost underestimation, delay in supply of raw materials, inadequate review of contract documents, lack of coordination during the design phase, and lack of cost planning during the pre- and post-contract stage, as having the greatest impact on the performance of project costs from the client's, consultants', and contractors' perspectives.

Construction delays are a common problem in Ethiopian construction projects of all sizes and stages. Ethiopia's construction industry is thriving, and road networks are being built throughout the country. However, historical data on completed road projects shows that none of them were completed on time and within budget (Shambel and D. Patel, 2018). According to Werku and Jha 2016, construction delays occur at all stages of a construction project and are common issues in Ethiopian construction projects, and this is one of the leading causes of project failure.

In Addis Ababa, there are many road projects constructed, under construction and planned to be constructed. The Ethiopian Construction Works Corporation (ECWC) was awarded a 4.5-billion-birr road project to be built here in Addis Ababa on November 18, 2020.

It is the first mega project floated by the Addis Ababa Road Construction Authority (AACRA) that ECWR won in recent years. On Wednesday November 18, 2020, the authority and the corporation signed their first agreement to build 118km of roads in the capital city.

During the ceremony, it was disclosed that the contract consists of eight road projects that will have a total length of 118 kms. Five of these projects that make up a total of 50 kms will be asphalt concrete, while the remaining three projects that cover 68.4 kms are going to be coble stone roads. The stated asphalt road, which is 15 to 50 meters in width, will be built in Yeka Tafo, Bole Arabsa, Jemmo, Koye Feche and Chefe Condominium areas.

It was also revealed that the projects are going to create 2,000 jobs and they are expected to take from 9 to 19 months to complete. In related news, AACRA will launch five more new road project constructions as of November 22, 2020. (Reporter Magazine) Of November 2020

But, a very common problem which is affecting almost all road construction projects in the city is the failure to meet the stated/planned completion period (delay).

And therefore, this chronic problem is repeatedly happening in almost all road projects of Addis Ababa city administration and we can assume list of factors to affect the on-time accomplishment of projects. This research aims at identifying the most common and frequent factors which contributes for this problem (time overrun most of the construction projects in Addis Ababa have had problems with time and cost overruns and that had caused a lot of concern (Becker and Behailu, 2006). Time and cost overruns in road construction projects in Ethiopia in particular in Addis Ababa in particular are one of the most significant problems in the field construction management.

A number of studies have been conducted to investigate the primary causes of construction delays in various types of construction projects. Abubeker J. (2015) identified the most important causes of time overrun as: right of way problems, financial problems, and improper planning in his study “Factors affecting time and cost overrun in road construction projects in Addis Abeba,” and according to his survey results, project time overrun ranges from 25% to 264.38 percent of its original contract amount. In his study on the analysis of factors contributing to time overruns on road construction projects under the Addis Ababa City Administration' in Ethiopia, Siraw Y. (2014) concluded that slow site clearance, inflation, progress payments delay by owner, contractors' financial problems, inaccurate cost estimation, and delay in commencement were the major causes of time overrun in Addis Ababa Road construction projects. Werku and Jha (2016) investigated the causes of construction delays in Ethiopian construction industries in their study Investigating Causes of Construction Delay in

Ethiopian Construction Industries. This includes contractor-related factors, material-related factors, labor-related factors, designer-related factors, consultant/supervisor-related factors, and client-relationship-related factors.

2.2.2. Leadership Factors

The project leader's professional qualification, leadership style, team composition, and overall project performance all had a significant relationship (Odusami, Iyagba&Omirin, 2003). Leadership must be developed among Hispanic workers to aid in the effective coordination of work activities by serving as a communication link between management and work crews. This provides opportunities for advancement and allows motivated individuals to advance professionally (Bob &Muir, 2005). Poor project performance is primarily caused by a lack of appropriate project organization structures, poor management systems, and poor leadership (Nyangilo, 2012). Nyangilo argued that the project leaders have technical skills but lack the basic project management skills of dealing with the project's human, cultural, and environmental aspects. Various statistical configurations have also been identified, indicating potential weaknesses within the team dynamic that may need to be addressed in order to improve project performance (Langford & Tennant, 2005). Kamalesh, Rizwan, and Syed (2002) gathered data from selected project managers and construction professionals working in managerial capacities in South Florida and discovered that the leadership style exhibited is both high task and high employee relationship; which is the selling type. They discovered that there is no statistically significant difference in the leadership orientation of experienced managers versus less experienced managers. Gbadura and Oke (2010) advocated democratic and transformational leadership styles for Nigerian quantity surveyors in carrying out their responsibilities as construction project managers.

Leadership competency profiles and stakeholder management (Turner and Müller, 2004) are important success factors in project management, according to Müller and Turner (2010). Kalsen et al. (2014) proposed ways for project managers to influence and encourage team members to achieve successful outcomes. They based their argument on positive psychology theory, which promotes a positive human vision. They cited the use of signature strength, positive meaning, positive emotions, and positive relationships as methods for producing positive results. The project manager guides and influences his or her team members by

influencing their thoughts, meaning, and self-talk. A culture in which everyone applies their knowledge and skills is required.

Ballard et al (2014) discovered, using three case studies, that employing an adaptive management approach can result in successful outcomes. They discovered that aligned governance and contract strategy serve as the foundation for project execution. Positive interaction within the project, among partners, and with external stakeholders is an important success factor. External stakeholders include the local community and the national government. Meetings and discussions among local stakeholders foster trust and secure commitment and acceptance from local decision makers. Furthermore, well-developed governance and procedures, as well as proven tools such as project tools and Muller (2012) observe that project governance is the most important environmental factor influencing the effectiveness of the applied project management approach, whereas stakeholder management and change management are the most influenced by environmental factors.

According to Lundy and Morin (2013), who cite Pinto et al (1998), numerous authors have considered leadership skills to be essential to project success, and successful transformation is 70% to 90% leadership and 10% to 30% management. The International Project Management Association (IPMA) identifies leadership as one of 46 competencies critical to project managers' success (ICB-IPMA, 2006; PMI, 2007; Lundy and Morin 2013). When considering the impact of leadership performance on the success or failure of a project, Nixon et al (2012) observe that it is critical to understand the distinctions between project management and project leadership. According to Anantatmula (2010), project management refers to the planning and organization of project activities through decision-making processes that improve a project's efficiency and effectiveness. Leadership, on the other hand, is about guiding others to achieve project objectives, motivating and guiding people to realize their potential and achieve more difficult and challenging organizational goals. People are persuaded by effective leadership.

2.2.2.1 Leadership Characteristics Skills Communication

Because communication is the ability of a project manager or leader to listen, persuade, and understand what others mean by their behavior, it is also one of the basic skills for a project leader. Communication skills for project managers are required to achieve project objectives. As a skilled communicator, you may find it easier to interact between the project leader or project

manager and the workers in the event of any problems on construction projects that can be completed quickly and easily (Lewis, James P. 1998).

2.2.1.2 Problem Solving and Decision Making

A leader must understand how to solve a problem, identify the source of the problem, identify practical solutions, and finally implement them. The problems to be solved are included among the elements in problem solving, and decisions must be made to solve the problems that have occurred (Lewis, James P. 1998).

A. Team Building

As a project manager also must engage in team building skills as necessary for the success of a project. For every decision made by a project manager or a leader should be known by their subordinates, because people definitely need to know what exactly is required of a leader, or a sharing of knowledge and learning, and in the selection process for an original team leader (Lewis, James P. 1998).

B. Conflict Resolution

In most construction projects, conflict is a major issue that must be addressed by the project manager or project leader. Resolving conflicts as a project manager is a difficult task in order to keep the project running smoothly. This conflict is defined in this chapter as the difference between two or more trusts, a clash of ideas in solving a problem, or an interest in project management (Lewis, James P. 1998).

C. Planning and Goal Setting

Planning is important in achieving an objective because, as a project manager, you must be clever and wise in preparing any planning process so that every construction project can proceed smoothly. As a project manager, you must also draw roads and plan ahead of time to ensure that all of the project's objectives are met (Spinner, M.P. 1989).

D. Sense of responsibility

In the event of a problem involving workers, the leader or project manager should feel responsible because the project manager is responsible for each employee. Furthermore, if there is a conflict on-site, the construction project manager must manage the problem because it is my responsibility as a manager to control the problem. The project manager is also in charge of

leading projects in various aspects that contribute to the overall success of a project, such as cost, schedule, quality, and safety requirements (Spinner, M.P. 1989).

E. Time Management

According to the study (Spinner, M.P, 1989), time is an important aspect of the construction process. If a project manager does not manage time properly, it can lead to project delays. Delays in project completion can result in additional costs to the provision in a construction project. Furthermore, as the project manager, you should be able to determine and control strategies in time to prepare a progress by stages that have been designed using the Critical Path Method.

2.2.2 Project Resource Allocation

The term "resources" refers to the materials needed for the project's smooth implementation, such as labor, equipment, and facilities. Activity resource estimation assists in determining which resources, such as labor, materials, and others, are required for each activity (PMI, International Journal of Scientific and Research Publications, Volume 7, Issue 4, April 2017 2250-3153 2010; Conchuir 2011). It entails calculating the types and quantities of materials, human resources, and equipment needed to complete each activity. Wrong resource estimation is hypothesized to have a negative impact on project schedule because duration estimation is heavily reliant on resource availability and correct estimation. This in effect affects timely project completion. These estimates have to be as accurate as possible.

One of the success factors of a project is a properly allocated resource (Fortune & White, 2006 cited in Ballard, 2014). There is a scarcity of resources, so a combination of resource utilization for competitive advantage and cost minimization of resource requirements in projects with fixed completion dates is required. Traditional time-cost trade-off analysis, according to Feng et al (2000), assumes that the time and cost of an option within an activity are deterministic. However, the time and cost are both uncertain. Therefore, in analyzing the time-cost trade-off problem, uncertainties should be considered when minimizing project duration or cost.

Piet Joubert (2010, cited in Yatich, 2016) defines resources as "the means by which we achieve project objectives." People with relevant skills and competencies are the primary resource. Capital, facilities, equipment, material, and information are the other major types of

resources. A proper needs analysis is required to define the project goals and objectives in order to ensure a cost-effective application of required resources. After completing a requirement specification, the project's baseline that must be resourced will be known. The work breakdown structure (WBS) serves as the foundation for determining resource requirements. The requirement specification will detail the actual requirements. PMI (2013) defines resource requirements using the following processes: plan cost management, which is the process of establishing policies, procedures, and documentation for planning, managing, spending, and controlling project costs in order to provide guidance and direction on how project costs will be managed throughout the project, Budgeting is the process of aggregating the estimated costs of individual activities or work packages to establish an authorized cost baseline against which project performance can be monitored and controlled. Resource estimation is a structured prediction of the cost and other resources required to execute a task to establish a control basis.

Yatich (2016), citing Talbot (1982), identifies resource acquisition as another process that refers to the process of physically obtaining the required inputs. All necessary resources must be paid for. A project's resources may include those that are limited on a period-to-period basis, such as skilled labor, as well as those that are consumed and constrained over the course of the project. At the planning stage, the resource-constrained project scheduling with time-resource trade-offs approach allows the user to identify several alternative ways to complete each job in the project. As a result, project financing is critical in the acquisition process. The acquisition process must be properly managed to account for potential seasonal shortages, labor disputes, equipment breakdowns, competing demands, delayed deliveries, and other issues that may arise. The project schedule may need to be adjusted to accommodate or work around supply issues. According to the same analysis, resource leveling is another important factor that ensures resource demand does not exceed resource availability and vice versa. If you are forced to reschedule a task on the critical path, the completion dates of subsequent tasks will be affected.

Regular and adequate project funding is one of the basic conditions for smooth project activity operations with no stoppages or unnecessary disruptions. Regular and on-time progress of work activities on site necessitates adequate cash flow in order to facilitate timely procurement of materials, plants, and equipment, as well as remuneration of labor force. Funding for the project the act of providing financial resources, usually in the form of money, or other

values such as effort or time, to finance a need, program, or project, usually by an organization or government. In general, this term is used when a company uses its internal reserves to meet its cash needs, whereas the term financing,, is used when a company obtains capital from outside sources (Spinner, M.P. 1989). Available funds can also refer to funds that can be withdrawn from a brokerage firm's margin account where margin loans are still outstanding.

2.2.3 Design change

A design change is any change made to a project's design or construction after the contract has been awarded and signed. Such changes are related not only to contract provisions, but also to changes in working conditions (Burati et al., 1992). Akinsola et al. (1997), on the other hand, stated that these changes are any additions, omissions, or adjustments made to Impacts of Design Changes on Construction Project Performance. Similarly, Park (2003) defined construction changes as "work states, processes, or methods that differ from the original construction plan or specification and are usually the result of differences in work quality and conditions, scope changes, or uncertainty. "The impact of design changes on construction project costs has been investigated and assessed." It is now widely accepted that design changes are almost always the source of cost overruns. Ikediashi et al. (2014) concluded in a study on construction projects that design discrepancies and frequent design changes are the most important factors resulting in cost overruns, which ultimately leads to project failure. In another study, Cheng (2014) asserted that the most significant cost overrun factors include an unclear and poorly defined project scope, numerous changes to the scope, and unclear drawings/guidelines/regulations.

2.2.4 Project Completion

According to Ahmad and Schroeder (2011), project completion is a key indicator of a company's ability to provide correct and on-time deliveries to its customers. When it comes to translating project management and performance, it is a quantitative measure against which an organization can be benchmarked. Archer (2006) defines project completion as a “controlling process that ensures that project objectives are met by monitoring and measuring progress on a regular basis to identify variances from Plan, so that corrective action can be taken, when necessary,” and identifies the controlling process as being linked to the planning and executing processes. Weil (2005) also describes controlling as a three-step process that includes measuring

progress, evaluating what remains to be done, and taking corrective action to meet or exceed the objectives. According to Mitnick (2005), “the performance monitoring subsystem is charged with observing the transformation process and reporting deviations from expectations to the decision-making subsystem so that corrective action can be initiated where necessary.” As cited in Jackson (2008), “in project management, control is based on a comparison of baseline plans and contracts with actual events, and deciding what to do (i.e., re-planning) when the two do not match” (Gardiner 2005). Also, according to Ross (2008), the three gorges project cost was perfectly controlled within the approved budget, as cited by Shandler (2006). So, in practice, it is possible to achieve complete project control. According to Minocha (2005), the best inputs for monitoring road construction are base line plans, cost budgets, risk management plans, quality plans, and contract documents. Again, Lucia and Lepsinger (2009) state that change requests are the primary component of changes to planned documents. As a result, monitoring is the first stage of ‘Project controls,' and it includes report generation. According to Lewis (2008), efficient monitoring and control systems will enable. Marasini and Dawood (2006) mentions that a typical report includes executive summary, bar chart, variations to time, cost and scope including risks. However, the quality of information is important. As, Jackson (2008) mentions that the work sites are busy and do not provide monitoring personal with much needed information. So, getting complete and accurate data from flied is very important and is also a weak link in the project control process. Lewis (2008) also mentions that monitoring report should focus on project targets, vulnerable work sections, productivity growth/decline, projected completion date and budget and outcome. Lucia and Lepsinger (2009) mentions that a typical project reporting to be produced at regular intervals to project manager and other senior management and client and further mentions that reports should be made in a way which can be understood by non-specialists. However, there it is necessary to know how much quality information is being produced by the project controllers and how much time is being spent on data collection and what kinds of skills are required for such activity. Again, as per Kenny (2007), ‘Monitoring’ includes planning parameters, risks, stakeholder involvement, milestone reviews, commitments, data management, progress reviews and ‘Managing’ includes analyze and take action. Janes (2010) mentions that informal project control mechanisms exist when the projects are small and the team members are highly motivated and decision regarding formal control system should be based on risks involved and cost of control system. He further mentioned that in construction

projects, the complexities are large and require dedicated control system. According to Karim and Marosszeky (2009), the projects are dynamic and are carried out in changing environments, necessitating monitoring and control actions. Despite the fact that Jackson (2010) elaborated on the details of controls in various knowledge areas, there is always a need to understand the key success factor, which when implemented effectively will improve the control procedures in any organization. Lam et al. (2007) conducted a review of 63 publications on 'critical success factors' and discovered more than twenty factors that can influence project success. Furthermore, Sambasivan and Soon (2007) defined success factors as project efficiency, customer impact, and business success. It is, however, difficult to meet all of the criteria in any given project. There have also been some criticisms leveled at the concepts of success factors. Vandevoorde and Vanhoucke (2006) state that there is no agreed-upon definition of success. Jugdev and Muller (2005) state that "project success is a complex and ambiguous concept that changes throughout the project and product life cycle." Despite the ambiguity, its continued relevance in improving goal understanding is widely accepted by industry and academia. According to Jugdev and Muller (2005), success factors in the twenty-first century are more about rationale agreement prior to the start of the project.

2.2.5 Construction Participants

A. Construction clients

According to studies, little attention is paid to client performance in the construction industry, and there is a scarcity of research that allows one to better understand the key roles of clients (Alinaitwe, 2008). According to Low and Chuan (2006), poor project performance may not be due to the incompetence of others, but rather to the client's actions before, during, and after the project. One of the major contributing factors to the project's lack of commitment and contractor inefficiency is the client's influence (Hemanta, Sawhney&Iyer, 2012).

B. Government

Historically, government has been in charge of infrastructure, which includes everything from buildings to roads to waterways to subways. The massive public sector expenditures on construction industry services include safety, training, hiring, and wage bargaining (Gerald, 1997). In most countries, roads are primarily funded and built by the government, and in Ethiopia, the FMoT role of policy formulation, regulation, standard setting, strategic planning,

monitoring, and evaluation has a significant impact on road project performance and development.

C. Construction consultants

The nature of the tasks assigned to consultants by clients varies (Chitkara, 2005 & Anderson, 2009), but generally includes: project feasibility engineering investigations, design coordination, and drawing work. They also estimate, plan, budget, prequalify construction agencies, and award contracts to successful bidders; design project organizations for executing works and developing standard operating procedures and systems; develop detailed construction plans; supervise works, including contract administration and project time, cost, quality, and scope management. These are the activities that influence future actions and success.

D. Contractors

Construction contractors play an important role in the construction industry because they carry out the majority of the construction work. According to Xiaohong, a competent construction contractor is one of the necessary conditions for a proper process and completion of a construction project (2011).

2.2.6 Effects of construction project delay

When construction projects are delayed, the consequences are often negative for the stakeholders. Aibinu and Jagboro (2002) conducted research on the effects of delays in Nigeria's construction industry. They discovered six possible common effects that arise as a result of delay in most countries.

These effects included: cost overruns, time overruns, disputes, arbitration, and litigation, and project abandonment.

2.2.7 Other factors that influence successful completion of Road construction projects

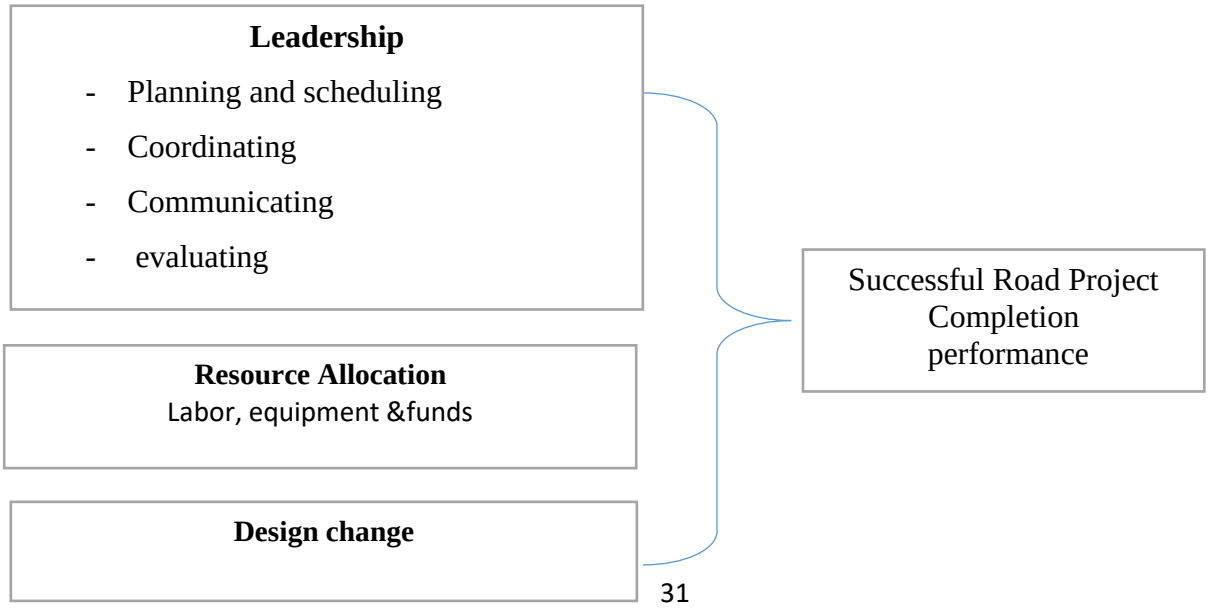
Planning, project team competence, and experience are other factors that influence the successful completion of road projects. Proper planning in all phases and an understanding of the components of road construction projects are required to avoid rework, which leads to an untimely project completion if proper planning is not done (Mojahed, 2005). On the other hand, many businesses, including road construction firms, invest heavily in long-term training plans for their employees, which has been shown to be beneficial to the company's growth. A workforce that is well trained and experienced is more likely to successfully manage and complete a road

International Journal of Economics, Commerce, and Management, United Kingdom Page 743 is a Creative Commons project that is licensed under the Creative Commons license (Ramlall,2003). Road construction employs more people than other industries, but human resource management is still inadequate and underutilized. To successfully complete road construction projects, problems with human resource management in road construction projects must be identified, and methods to improve them must be developed and implemented (Idrus et al, 2011).

2.4 Conceptual Framework

In relation to the literature review, the conceptual framework has underlined a number of factors that affects timely completion of outsourced road construction project in Addis Ababa. It outlined variables in road construction projects that affect the road construction performance. According to Mugenda&Mugenda (2003) cited in Sawega (2014), a conceptual framework is a diagrammatical representation of hypothesized relationship between independent and dependent variables of the study. The variable in this case is the factors of delay of road construction projects implementation in the road construction sector and the subsequent outcomes is delays with leadership, resource, design change, underutilization and wastage of resources and total abandonment etc. From the literature reviews, the researcher has adopted the following seven independent variables and categorized them in to leadership related, resource allocation /availability of fund and design change related.

Figure 2.1: Conceptual framework (adopted by researcher)



2.3 Hypothesis

HA1: Project leadership has positive and significant impact on completion of road project

HA2: Resource allocation has positive and significant impact on completion of road project

HA3: Design change has positive and significant impact on the completion of road projects.

CHAPTER THREE

RESEARCH METHOD

The methodology used in the study is described in this chapter. This includes the research design, research approach, target population targets and sampling technique, sampling design, data sources, data collection instrument, data collection procedures, data processing and data analysis methods, reliability analysis, and ethical considerations.

3.1 Research design

According to Sekaran and Roger (2011), a research design is a master plan that specifies the methods and procedures for gathering and analyzing the required data. It is acknowledged that several approaches are available in social research, but the choice of approach is heavily influenced by the study's objectives. In assessing the factors influencing the completion of road construction projects in Addis Ababa, the study used a descriptive research design & inferential statistical analysis, correlation and multiple linear regression methods was utilized using statistical package for social sciences (SPSS) software. The use of these statistical tools and methods of presentation are described below.

3.2 Research approach

In this study, mixed approach used to provide a wide-ranging analysis of the research problem. However, more emphasis was given to quantitative analysis. The qualitative data was used only to triangulate the data which is obtained by the quantitative method. This research mainly focused on quantitative method of analysis.

3.3 Population and Sampling design

3.3. 1 Target Population of the study

Target population is defined as a universe of the study as all members of a real or hypothetical set of people or events to which an investigation wishes to generalize results. The target population of the study were client, contractors and consultants who are involved directly in the construction of the road projects irrespective of their experience in road construction

projects as the number of ongoing road project is many but I focus only one and the research didn't consider a closed projects in the authority.

Table 3.1: Target Population

Target population	N	%
Contractors (PM, Office engineers, site engineers)	20	33.3
consultants (resident engineers)	15	25
client staff	15	25
project supervisor	10	16.7
Total	60	100

Source: AACRA of roads and public works 2021

3.3.2. Sample size:

Sampling is an illustration of inductive rationale by which conclusion is derived on the basics of a small number of examples. Inductive thinking base on sampling is more like part of our daily activity. Sample is a sub-group of a population, which is the totality of some category of component, human or otherwise. Sampling is used as a basis for statistical estimation, or illation from items, about the features of that population (Saunders, et al 2009). A total of 120 respondents were deliberated as adequate and sensible for this study. The sample was restricted to AA road construction project authority and the respondents were Addis Ababa Road authority staff, contractors, consultants, subcontractors, engineers, who involve in road projects construction system and excluding a supportive staff for all the target population. Even Addis Ababa Road authority has total of 1780 permanent staff but only three team i.e., Contract administrative& design have been considered for the questionnaires as the three team has direct interaction with ongoing projects. However effective selection of the target respondents with high competence and experience proved to shield this gap. From the Contract administrative& design of AACRA the researcher selects a total of 60 respondents purposively. Though the sample size is relatively small, the quality of the responses was considered to be highly reliable for the analysis due to relevant industry experience, personal level interactions and clearly understanding the questionnaires among the respondents (Vaus, 2001).

3.3.3 Sampling Technique

To select sample project the researcher used non probability sampling technique. The researcher selected 1 8km lengthy road project purposively. This project was taken because it took comparatively long project duration and because it incorporates high number of employees among other road projects. In addition to this because of time and cost to collect data and the pandemic the researcher took The Case of Lamberet-Kotobe Kara Road Project.

The target population of this study is believed to have experience and knowledge in the area of study in road construction projects implementation in the project. Because of the nature of the road construction the researcher selects the project which are easily accessible and proximate to collect data selected for the purpose of the study.

3.4 Data Collection Instruments

The data for this study were gathered from the main construction parties (clients, contractors, and consultants) who took part in the road construction project via questionnaire and document review. The questionnaire's questions are all closed-ended. Based on a literature review and some additional suitable questions developed with expert assistance in the field under study, the questionnaire used in this study was adapted from the questionnaire used by L. Muhwezi et al (2014). Project performance, leadership-related factors, resource/fund availability, and design change, as outlined in the questionnaire. The questionnaire was designed to assess respondents' perspectives on the importance/severity and likelihood/frequency of occurrence of delay causes from each group (clients, consultants, and contractors).

3.5 Data Analysis Method

To analyze qualitative data, the study used the statistical package for social sciences (SPSS 20). This program was used to analyze descriptive statistics by measuring the central tendency and the data distribution. This program interprets data collected via questionnaire in order to obtain meaningful information from the data.

3.6 Reliability Test

The consistency, stability, or dependability of the data is referred to as reliability. When an investigator measures a variable, he or she wants to know that the measurement yields reliable and consistent results (Cooper & Schindler, 2003). A reliable measurement is one that, when

repeated, yields the same results as the first time. If the results differ, the measurement is unreliable (Mugenda&Mugenda, 2003). An internal consistency technique based on Cronbach's alpha will be used to assess the reliability of the data collection instruments. Cronbach's alpha is a reliability coefficient that provides an unbiased estimate of data generalizability. An alpha coefficient of 0.75 or higher indicated that the collected data is trustworthy because it has a relatively high internal consistency and can be generalized to reflect the opinions of all respondents in the target population. Reliability is essentially the dependability of an instrument to test what it will design to test. The appropriate test for reliability is inter-item consistency reliability which is popularly known as the Cronbach's coefficient alpha. According to Joseph and Rosemary (2003), Cronbach's alpha reliability coefficient (α) normally ranges between 0 and 1. According to these authors, there is a greater internal consistency of the items if the Cronbach's alpha coefficient closes to 1.0. Based on the following rule of thumb of (George and Mallery, 2003, p. 231), if "α > 0.9 – 'Excellent', α >0.8 – 'Good', α >0.7 – 'Acceptable', α >0.6 – 'Questionable', α >0.5 – 'Poor', and α <0.5 – 'Unacceptable'."

3.7 Model and variable specification

For the analysis of the DV and IV of the study, the following multiple regression model was used in the regression analysis of variables:

Y=+1x1+2x2+3x3...+£i, where Y=dependent variable (completion of road project)

=constant term X1, X2, and X3=independent variables (project leadership, resource allocation, design change).

β1, β2, β3= the slope coefficient of continuous variable

£i= random error/residual term

3.8 Ethical Consideration

Certain issues will be addressed because this study will involve individuals in assessing factors affecting road construction projects. The consideration of these issues is required to ensure the privacy and security of the participants. These issues will be identified ahead of time in order to

avoid problems that may arise during the research process. Confidentiality and data protection are two of the most important issues to consider.

CHAPTER FOUR

4.1 RESULTS AND DISCUSSIONS

The purpose of this thesis is to assess factors affecting the completion of outsourced road construction in Addis Ababa; the case of lamberet-kotebe kara road construction project.

The previous three chapters discussed the review of related literature as well as the methodology used. In this chapter, data collected through questionnaires from professionals working in the Addis Ababa City Roads Authority contract administration department and the Lamberet- Kotobe kara road project is presented, analyzed, and interpreted to address the research questions and objectives stated by the researcher in chapter one. For analysis, the SPSS 20 software was used. Detailed discussion of research methodology. Detailed discussion on research hypothesis and similarity and differences of the findings with previous studies is also presented.

Non response bias, pilot testing, profile of the respondents, and findings of empirical results, respectively are included in this chapter

The main objectives of this study tried to assess the effect of leadership, resource allocation, and design changes in timely completion of outsourced road construction project in Addis Ababa; the case of Megenagna Lamberet Kotobe road.

In addition to this the study tried to determine the relative contribution of the three factors on the delay of the road project from Megenagna to Lamberet. Each ranking is made using mean score data analysis method based on the importance of frequencies of occurrence for the causes and results, to identify the most important factors in the national contract road constructions of Addis Ababa City Road projects. A desk study survey was also conducted to evaluate the existence and extent of variation orders for randomly selected completed and undergoing Road projects of the Addis Ababa City.

4.2 Non response bias Response Rate of Respondents

According to Berg (2005), fault a researcher does when estimating the population property based on a sample of survey data in which, certain types of respondents are under-represented, due to non-response, is said to be non-response bias. When either of the two non-responses, namely

Item non-response or unit non-response occurs it is said that bias occurred. Item non-responders might leave an item on a questionnaire blank, or responding, saying they don't know, to some questions while providing a valid response to other questions. Whereas, Unit non-response is a complete non-participation on the part in which the survey intends to include.

Different techniques are available for using the partially completed responses returned from item non-responders to control for differences. If the entire units are missing from a sample no test or correction for bias is available without obtaining additional data Berg (2005). there was only unit non response in this thesis.

From 60 questionnaires 54 was returned and they were used for quantitative analysis and discussion; which indicates that the response rate was 90%, which is an acceptable percent.

The demographic characteristics of respondents involved in this thesis, including gender, age, level of education, year of experience, and job designation, are presented below.

Table 4 .1 demographic characteristics of respondents

		Frequency	Percent
Sex	Male	36	66.7
	Female	18	33.3
	Total	54	100.0
Age	21-30 years	32	59.3
	31-40 years	14	25.9
	41-50 years	7	13.0
	above 51 years	1	1.9
	Total	54	100.0
Educational background	PHD	1	1.9
	MA/MSC	15	27.8
	BA/BSC	35	64.8
	TVET/DIPLOMA	2	3.7
	HIGH SCHOOL COMPLETE	1	1.9
	Total	54	100.0
Experience	Less than 1 year	3	5.6
	1-5years	21	38.9
	6-10 years	14	25.9
	above 11 years	16	29.6
	Total	54	100.0

Organization	Client	23	42.6
	Contractor	16	29.6
	Consultant	15	27.8
	Total	54	100.0
Job Designation	project manager	10	18.5
	project office engineer	15	27.8
	resident engineer	12	22.2
	surveyor	4	7.4
	supervisor	12	22.2
	foreman	1	1.9
	Total	54	100.0

54 responses were collected from 60 randomly selected samples using the purposive sampling method. This indicates a 90% response rate, which is considered acceptable. Most of the middle managers are male and seniors.

About 94.5 % of the respondents have at least first degree and above educational status. The educational status of the employees shows that they could understand the questionnaire and respond appropriately.

According to the above table, the majority of respondents (5.6 percent) have worked in the firm for more than a year, 38.9 percent have worked for 1-5 years, 25.9 percent have worked for 6-10 years, and 29.6 percent have worked in their organizations for more than 11 years. Based on the number of years employees have worked for the company, it can be concluded that the respondents have sufficient experience with the company to provide relevant information for this study. About 42.6 % of the respondents are client (AACRA contract administration department with 29.6 % are contractors and 27.8 of the respondents are project consultant. From this what we understand is that the information appropriate.

4.4 Reliability

According to Carmines and Zeller (1979) and Moser and Kalton (2007), reliability is concerned with repeatability; the stability and consistency of a measure; and the closeness of the

research finding if another study is conducted using the same research method. Researchers examine the consistency of findings across different observers and time periods to determine reliability. As a result, if the scale's items remained consistent and measured the same construct, it is said to have high internal consistency reliability (Huck, 2007).

The internal consistency measuring instrument assesses the degree to which test items are consistent with one another and with the test as a whole. It is assessed using three methods. The first, the Kuder-Richardson coefficient, is more accurate than the split half test, which is performed by dividing a single knowledge area test into two. The Kuder-Richardson coefficient, on the other hand, can only be completed on questions with two answers. Nonetheless, Cronbach's alpha is the most commonly used test to determine an instrument's internal consistency; it tests instruments with questions that have more than two responses.

In this thesis, Homogeneity (internal consistency) is assessed using cronbach's alpha. cronbach's alpha value of 0.9 and above is Excellent, between 0.7 and 0.9 show high reliability, 0.5 – 0.7 shows moderate reliability and 0.5 and below shows low reliability. Therefore, the overall Cronbach's Alpha value indicated that it is highly reliable (>.80). Hence, as can be seen in the tables below all variables are taken for further analysis.

Table 4.2 **Reliability Statistics**

	Reliability Statistics			
No	Variable Name	Cronbach's Alpha Value	No of items	(α) reliability ranges
Independent variables				
1	Leadership	.74	10	Acceptable
2	Resource	.71	5	Acceptable
3	Design change	.80	9	Acceptable
Dependent variable				
1	Performance	.77	5	Acceptable

Table 4.3. Overall reliability

Overall Reliability

Cronbach's Alpha	N of Items
.843	4

Source: own survey, 2021

4.5 Validity of Major Constructs

According to Wilson (2010), reliability alone is insufficient unless it is combined with validity. The degree to which the instrument we chose measures what it should measure is referred to as validity. Researchers consider it to be the most important criterion. The differences in the measuring instrument reflect the actual differences between those being tested (Creswell 2009; Kothari 2004).

As stated in measurement of constructs, to ensure validity of the instruments the scale for leadership, resource and design was adopted form Project Management Handbook Version 1.1 - July 2006, Project Management Gary R. Heerkens, PMP respectively. Finally, the scale for performance which has 5 items was adopted from Iyer K. & Jha N., (2005).

To reduce the capacity of sampling error and increase questionnaire response rates pilot survey was carried out on 10 respondents and it was all acceptable. In addition to this, internal reliability was checked by using Cronbach's alpha coefficient. Since the acceptable level (>7) was achieved the final questionnaires were prepared and distributed to respondents Wilson (2010).

4.6 Assessing Missing Data

As said by Coleman (2011), when using Likert scale rated items it is quite possible to have missing data issues. This might produce bias estimate and reduced model fit. It will also weaken generalizability of findings; but a missed data of less than 10% is not considered as a vital problem.

Since there were no missing data, the researcher continued with 54 usable questionnaires for further analysis.

4.7 Assessing outliers

Outliers, according to Tinsley and Brown (2000), are extreme values on one or more variables. This could be due to an incorrect value being entered, an error in recoding or transforming variables, or the presence of a valid but exceptional data point. The presence of outliers will impact the analysis and possibly the understanding of the empirical findings (Kline, 2005). There are two categories of Outlier findings. The first, outliers that have cases with unusual values for only one variable, called univariate outliers and the second, outliers that have cases with an unusual mix of values for more than one variable, called multivariate outliers (Field, 2009;

Pallant, 2010). The researcher used the frequency distributions of z scores in order to find univariate outliers. According to Tinsley and Brown (2000), Z score of absolute value greater than 3.29 with p< .001, indicates that there is a univariate outlier. Based on this, there were no univariate outlier was observed in this thesis.

The multivariate outlier's analysis was done by using the criterion that the D2 (Mahalanobis distance) value should be p< 0.005 as recommended by Kline (2010). In the output of SPSS, since there were no values which were less than 0.005, all the data were used.

4.8 Descriptive Statistics

This section represents the respondent's perception on the independent and dependent variables. Research participants were asked to indicate the extent to which they agree and disagree to statements relating to the variables under the study of five-point Likert scale (5= strongly agree to 1= strongly disagree).

Standard deviation was used to indicate variation from the mean. A low standard deviation indicate that points tend to be very close to the mean, whereas high standard deviation indicates that the data is spread over a large range of values.

Descriptive statistics in the form of mean and standard deviation were presented to illustrate the level of agreement of the respondents with their implications of the company. The responses of the respondents for the variables indicated below were measured on five-point Likert scale with:

1 = not significant
2 = slightly significant
3 = moderately significant
4 = highly significant and
5 = extremely significant.

4.9 Leadership

Table 4.4 descriptive statistical analysis of leadership related factors

	Mean	Std. Deviation
Advanced project organization structures	3.8148	1.91858
Proper project management systems and leadership	3.3148	1.59981
Communication among the project stakeholders	2.9259	0.79745
The project manager deals with conflicts	3.7593	0.97003
The project manager was creative & innovative	3.6852	1.94817
Scheduled discussions with project team	2.6074	1.90112
Effectiveness of coordination and/or inclusion of project user groups.	2.963	1.05889
Contractor experience	2.7963	0.87695
Coordination among project participants social condition, economical condition	2.6815	1.57747
Contractor's competency/adequacy.	2.8259	1.85295

Source: own survey,2021

The table above provides a description of project leadership factors as well as the leader's ability to complete road construction on time. The results show that the first five major causes of road construction project delays are "proper project management systems and leadership," "communication among project stakeholders," "contractor experience," "the project manager deals with conflicts," and "the project manager was creative & innovative," with mean values of 3.31, 2.92, 2.79,2.75, and 2.68, respectively. This result is consistent with the findings of Assaf and Al-Hejji (2006) in various projects in Saudi Arabia. This factor implies poor project management, monitoring and evaluation capability in AACRA.

4.10 Resource

Table 4.5 descriptive statistical analysis of resource allocation related factors

	Mean	Std. Deviation
To what extent does Availability of funds influence outsourced road construction projects Completion in AACRA?	3.537	1.00401
To what extent does availability of skilled human power affect timely completion of outsourced road construction in AACRA?	3.5556	0.8165
How Project financing Influences successful Completion of road construction projects	2.722	1.0536
Indicate the extent to which Adequate labor, equipment and facilities influences road construction projects Completion in AACRA	2.4259	0.98291
Wrong resource estimation is hypothesized to affect negatively project schedule	2.4815	0.96624

Source: own survey,2021

The table above depicts how the proper resource allocation affects the timely completion of an outsourced road construction project in Addis Ababa. According to the table above, resource availability is one factor, but according to the participants on this paper, road delay is not related to resource allocation; this means that there are other factors that are primarily responsible for delays in outsourced road construction in Addis Ababa.

4.11 Design Change

Table 4.6 descriptive statistical analysis of design change related factors

	Mean	Std. Deviation
The design change Increase design fee	3.7222	2.0536
The change in design Increase Road construction cost	3.9259	2.90807
Change in design Delay Road construction projects progress	3.3704	2.95752
Re-work operations Increase chances for material waste	2.737	0.69263
Design change Led to loss of productivity and efficiency due to interruption and out of sequence works	2.833	0.72684

Design change Led to loss of motivation and momentum to re-do work	2.985	1.05938
Design change Increase chances for design mistakes	2.537	1.09394
Design change Decrease quality of works	3.523	2.98575
Continuous design change Increase chances for frustration, strain the relation, and build-up bad atmosphere among concerned people	2.6185	1.04142

Source: own survey,2021

The table above depicts a description of a design change that has caused a significant delay in the timely delivery of an outsourced construction project. Some major factors that have a significant impact include: a change in design that raises the cost of road construction (2.92) The design change increases the design fee (2.72); we can conclude from the above table that design change is one of the major reasons for the road not being completed on time in Addis Ababa.

4.12 Performance

Table 4.7 descriptive statistical analysis impacts of leadership, resource and design change on timely completion of road construction in Addis Ababa

	Mean	Std. Deviation
We consistently meet our performance targets on time.	2.2778	0.94003
We consistently achieve our stated goals.	2.3333	0.84675
More often attain our annual objectives.	2.5926	1.12466
We consistently meet our planned performance.	2.8333	1.16149
We consistently meet dead lines	2.7222	1.10602

Source: own survey,2021

The above table shows that how far the three major factors (leadership related factors, resource related factors and design change) have significant contribution on timely completion of outsourced road construction project in Addis Ababa.

4.13 Regression analysis

Regression analysis is a statistical technique that is used to estimate the relationships between endogenous and exogenous variables. It allows for the determination of the strength of the relationship between variables as well as the predictive power of the independent variables on the dependent variable. In short, regression helps a researcher understand how much a change in the value of the dependent variable causes a change in the value of the independent variables while the other independent variables remain constant. Regression analysis is a statistical method for determining which variables have an effect. While there are many types of regression analysis, at their core they all examine the influence of one or more independent variables on a dependent variable.

4.14 Diagnostic Tests of Assumptions of Classical Linear Regression Model (CLRM)

The Classical linear regression model such as homoscedasticity, auto-correlation, Multicollinearity, and normality were conducted and discussed below.

A) Assessing Multi-collinearity Assumption

In multiple regression, multicollinearity refers to the degree to which independent variables are correlated. It impairs the ability to evaluate the relative importance of each independent variable. A problem with Multicollinearity causes high correlations between independent variables. Line (1998); Mansfield and Helms (1982); and Ramadan et al. (2017).

Tolerance indicates how much of the variability of the specified independent variable is not explained by the model's other independent variables and the variance inflation factor (VIF is the influence of correlations among independent variables on the precision of regression estimates). Dormann et al. (2013) proposed that a tolerance value of less than 0.1 almost certainly indicates a serious Collinearity problem, and Liu (2010) proposed that a VIF value greater than 10 indicates more severe Multicollinearity. To determine whether this thesis has a multicollinearity problem, the researchers use a common cut off value of 0.10 for tolerance and a value of 10 for VIF, as recommended by Sekaran and Bougie (2013).

As shown in the table below, tolerance is greater than 0.1 and VIF is less than 10, indicating the absence of multicollinearity treatment in the data.

Table 4.8 collinearity statistics

Collinearity Statistics		
	Tolerance	VIF
LEADERSHIP	0.454	2.202
RESOURCE	0.842	1.188
DESIGN	0.456	2.191
Dependent variable: Performance		

Source: analysis of survey data using SPSS 20

B) Assessing Normality Assumption

The normality test is used to determine whether sample data was drawn from a normally distributed distribution. It also indicates whether the data set is well modeled by a normal distribution and computes the likelihood that a random variable underlying the data set is normally distributed (Brown, 2016).

Because multiple regression requires normally distributed independent variables in the analysis, normality was checked before running the regression using Kurtosis, which measures whether the data is heavily tailed or lightly tailed to the normal distribution, and Skewness, which is a measure of symmetry. The kurtosis and skewness distribution, normal probability plot, and Histogram plot tests were used to test for normality in the given regression model. Skewness, kurtosis, and histogram were used to validate the test in this study.

As a rule of thumb, skewness and kurtosis should be between -2 and 2 if the data is normally distributed. As a result, the analysis for all variables, as shown below, is normally distributed (Hair et al, 2006).

Table 4.9 Normality Test Skewness and Kurtosis

	Skewness		Kurtosis	
	Statistic	**Std. Error**	**Statistic**	**Std. Error**
LEADERSHIP	0.151	0.325	-0.907	0.639
RESOURCE	-0.237	0.325	-0.07	0.639
DESIGN	0.142	0.325	-1.415	0.639
PERFORMANCE	-0.236	0.325	-1.138	0.639

Source: analysis of survey data using SPSS 20

c) overall model fit

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.823a	.678	.658	.44141
a Predictors: (Constant), DESIGN, RESOURCE, LEADERSHIP				

R squared which is the proportion of variance in the dependent variable (performance) which can be predicted from the independent variables (leadership, resource and design). The value indicates that 67.8% of the variance in performance, can be predicted from; leadership, resource and design. However, this does not reflect the extent to which any particular independent variable is associated with performance, it simply is the overall measure of strength of association.

4.15 Hypothesis testing and discussion of findings

The three-hypothesis used in this thesis were:

HA1: Project leadership has positive and significant impact on completion of road project

HA2:resource allocation has positive and significant impact on completion of road project

HA3: Design change has positive and significant impact on the completion of road projects.

4.15.1 Regression output

Table 4.10

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-0.633	0.363		-1.746	0.087
	LEADERSHIP	0.454	0.148	0.364	3.057	0.004
	RESOURCE	0.177	0.116	0.133	1.523	0.134
	DESIGN	0.58	0.152	0.453	3.816	0.000

a. Dependent Variable: PERFORMANCE

Source: own survey,2021

As per regression output in the above model, from the total of 3 independent variables 2 variables i.e., Leadership and design change had significant effect on performance of road projects in Addis Ababa. But in this research, resource was found not to have significant effect on performance of road projects in Addis Ababa.

$Y=\alpha+\beta1x1+\beta2x2+\beta3x3$

Performance predicted=-0.633+0.454*leadership+0.177*resource+0.58*design

Based on the regression output above the coefficient of leadership is positive and statistically significant effect on performance. For every unit increase in project leadership a 0.454 unit increase in performance is predicted, holding all other variables constant.

Based on the regression output resource was found not to be significant for the performance of road project, in the specific research area. This result shows inconsistency with previously done researches. Therefore, further study is needed.

The coefficient of design is positive and statistically significant effect on performance. For every unit increase in design change a 0.58 unit increase in performance is predicted, holding all other variables constant. One of the success factors of a project is a properly allocated resource (Fortune & White, 2006 cited in Ballard, 2014). There is a scarcity of resources, so a combination of resource utilization for competitive advantage and cost minimization of resource requirements in projects with fixed completion dates is required. Traditional time-cost trade-off analysis, according to Feng et al (2000), assumes that the time and cost of an option within an

activity are deterministic. It is now widely accepted that design changes are almost always the source of cost overruns. Ikediashi et al. (2014) concluded in a study on construction projects that design discrepancies and frequent design changes are the most important factors resulting in cost overruns, which ultimately leads to project failure. In another study, Cheng (2014) asserted that the most significant cost overrun factors include an unclear and poorly defined project scope, numerous changes to the scope, and unclear drawings/guidelines/regulations.

Leadership competency profiles and stakeholder management (Turner and Müller, 2004) are important success factors in project management, according to Müller and Turner (2010). Kalsen et al. (2014) proposed ways for project managers to influence and encourage team members to achieve successful outcomes. Review of contract documents and owners' involvement at planning and design phase were rated most to be implemented at design stage. This was because the involvement of the owner in the design phase would assist in clarifying the project objectives and in identifying noncompliance with their requirements at an early stage. Eventually, this may help in eliminating the occurrence of variations during the construction stage where the impact of the variations can be more severe.

CHAPTER FIVE

Summary, Conclusion and Policy Implication

5.1 Introduction

This chapter presents the summary of findings, conclusion and policy recommendation accordance with the findings from the study. The study attempted to assess the factors that affect completion of outsourced road construction projects in Addis Ababa; the case of Lamberet-Kotebe Kara road construction Project.

5.2 Summary

The objective of the study were to assess the factors that affect completion of outsourced road construction projects in Addis Ababa; the case of Lamberet- Kotebe Kara road construction Project. Based on the literature review discussed in chapter two, three independent variables of leadership factors, resource related factors and design change related factors and also one dependent variables performance were identified.

Out of 60 (100%) questionnaires ‘were collected through a self-administered survey and 54 (97.47%) questionnaires' were properly filled and ready for analysis. The collected data was analyzed using statistical package for social science software (SPSS) and Stata. Regression analyses and mediation analysis was employed for testing the hypotheses. Regression analysis, reliability, correlation analysis and other post estimation testes like multicollinearity, normality and homoscedasticity tests were performed.

The reliability test was administered to check whether the questionnaire is reliable or not. In this regard as per Table 4.3 illustrates all the quaternaries were reliable and acceptable with overall Cronbach's Alpha result 0.843.

Related to the demographic characteristics for the respondent’s Table 4.1 specifies that majority of the employees 36 (66.7 %) were male. Regarding their age level majority of them were between age group of 21-40 years are 46 (85.2 %). Regarding educational level again illustrated that majority of the employees were BA degree holder. Moreover, regarding work experience of the Respondents majority of the respondents were who have served for 1 -5 years.

Multiple regression analysis was carried out to test the factors that affect completion of outsourced road construction projects in Addis Ababa; the case of Lamberet- Kotebe Kara road construction Project. The result of the analysis revealed that out of three independent variables two variables were significant effects on timely completion of road construction project in Addis Ababa. These variables are project leadership related factors, availability of resource related factors &project design change related factors. But one variable was insignificant effect on timely completion of road construction project i.e., resource related factors.

The findings of the analyzed survey results have been thoroughly discussed in the previous chapter and therefore the following conclusions are drawn in accordance with the research questions of the study. Which were

- Does leadership affect the completion of road construction project in Addis Ababa?
- Does resource allocation affect the completion of road construction project in Addis Ababa?
- Does design change affect the completion of road construction project in Addis Ababa?
- What is the relative contribution of the three factors to the delay of road project?

5.3. Conclusions

The objective of the study were to assess the factors that affect completion of outsourced road construction projects in Addis Ababa; the case of Lamberet- Kotebe Kara road construction Project. Based on the results the study made the following conclusions:

This finding is consistent with the above-mentioned cause of late completion, which is "factors related to leadership/project management related and design change after project begins."

- The results of the study established that Leadership and design changes were found to have a positive and significant impact on road project completion. This implies that there is a problem with project leadership in AACRA-managed projects. As a result, efficient and effective project management plays an important role in project completion on time.

- However, the results of the study confirmed that resource allocation was insignificant.
- From the two, leadership and design change, design has a more predominant effect for the delay of road construction projects.

5.4. Policy Recommendation

From the conclusion made based on the major findings of the research the following recommendations are suggested. These are:

- Leadership plays a major role in every projects as can be seen in the above result, for the completion of road projects good leadership is needed. it should periodically check and revise, if necessary, leadership style of project management system depending on feedbacks collected.
- This specific road project has undergone in different design changes which led the project to take elongated time than planed therefore attention needs to be given for review of the project design.
- Thus, it's advisable to AACRA to understand how to manage the design of its project in its preliminary stage where it can increase the timely completion of road project.
- To do so independent design consultant must be involved in a higher degree so that to avoid design change in the middle of the work.

5.5 Future research

Because of time, money and covid pandemic this study took only one road project and three variables (leadership related factors, resource availability and design change related factors) the case of Lamberet-Kotebe Kara road construction project, it would be good if other studies incorporate different road projects and different other variable in their study.

In this study resource allocation was not significant for completion of road construction project, this result deviates from previous results, there future study is needed

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Appendices

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS & ECONOMICS

DEPARTMENT OF PUBLIC ADMINISTRATION AND DEVELOPMENT MANAGEMENT

ASSESMENT OF FACTORS AFFECTING THE COMPLETION OF OUTSOURCED ROAD CONSTRUCTION IN ADDIS ABABA; THE CASE OF LAMBERET-KOTEBE KARA ROAD CONSTRUCTION PROJECT

(Questionnaire)

Dear Sir/ Madam,

My name is Waktola Amante, a graduate student of Addis Ababa University. I am conducting research about "*Assessments of Factors Affecting Completion of Outsourced Road Construction Projects in Addis Ababa (The Case of Lamberet-Kotobe Kara Road Project)",* which I had chosen as a topic to conduct research on it for my master's project.

To facilitate this exercise, you have been scientifically selected as participant in this study. You are kindly requested to participate in answering the questionnaire. Please be assured that any information obtained will be treated with utmost confidentiality and will be used only for the purpose of this study.

Yours Sincerely,

WaktolaAmante Graduate Student, Addis Ababa University

E-mail: waktolaamante@gmail.com

Advisor: Frehiwot G. (PhD)

1. General Information

Part I. Demographic data

Dear participants, please read the questions carefully and put a tick mark "✓" on the space provided or give short description where necessary.

1.1 Gender

Male ☐ Female ☐

1.2. Age range 21-30 years ☐ 31-40 years ☐ 41-50 years ☐ >51 years ☐

1.3. Educational Background

PhD ☐ MA/MSc ☐ BA/BSc ☐

TVET/ Diploma ☐ high school complete ☐ other ☐

1.4. Experience in Road construction (in years)

Less than 1 year ☐ 1-5 years ☐

6-10 years ☐ 11+ years ☐

1.5. State respondent organization/company type.

Client ☐ Contractor ☐ Consultant ☐

1.6. Job Designation

Project Manager ☐ Project Office Engineer ☐

Resident Engineer ☐ Surveyor ☐

Supervisor ☐ Foreman ☐

Other, Specify_____

Part II: Factors contributing to delay in Completion of outsourced road construction projects in Addis Ababa city road authority.

Instruction: -please, tick "√" in the appropriate columns to indicate how much you agree that the following listed factors related to time performance of projects, leadership, related to available resource affects completion of road construction projects in Addis Ababa and its impacts.

Where; E.S. = extremely significant (5); V.S. = Very significant (4); M.S. = moderately significant (3); S.S. = slightly significant (2); N.S. = not significant (1);

NO	Hypothesized Factors	**5**	**4**	**3**	**2**	**1**
A.	**Leadership Factors related factors**	5	4	3	2	1
1	Advanced project organization structures					
2	Proper project management systems and leadership					
3	Communication among the project stakeholders					
4	The project manager deal with conflicts					
5	The project manager was creative & innovative					
6	Scheduled discussions with project team					
7	Effectiveness of coordination and/or inclusion of project user groups.					
8	Contractor experience					
9	Coordination among project participants social condition, economical condition					
10	Contractor's competency/adequacy.					
B	**Factors related to availability of resources**	**5**	**4**	**3**	**2**	**1**
1	To what extent does Availability of funds influence outsourced road construction projects Completion in AACRA?					
2	To what extent does availability of skilled human power affects Timely completion of outsourced road construction in AACRA?					
3	How Project financing Influences successful Completion of road Construction projects					
4	Indicate the extent to which Adequate labor, equipment and Facilities influences road construction projects Completion in AACRA					
5	Wrong resource estimation is hypothesized to affect negatively project schedule					
C	**Design change**	**5**	**4**	**3**	**2**	**1**
1	The design change Increase design fee					

2	The change in design increase road construction cost					
3	Change in design delay road construction projects progress					
4	Re-work operations Increase chances for material waste					
5	Design change lead to loss of productivity and efficiency due to interruption and out of sequence works					
6	Design change lead to loss of motivation and momentum to re-do work					
7	Design change Increase chances for design mistakes					
8	Design change Decrease quality of works					
9	Continuous design change Increase chances for frustration, strain the relation, and build-up bad atmosphere among concerned people					
D	**Performance**					
1	We consistently meet our performance targets on time.					
2	We consistently achieve our stated goals.					
3	More often attain our annual objectives.					
4	We consistently meet our planned performance.					
5	We consistently meet dead lines					

Thank You!