

**ST. MARY UNIVERSITY
SCHOOL OF GRADUATE STUDIES**



**FACTORS AFFECTING THE SUCCESS OF ROAD PROJECTS IN
ADDIS ABABA CITY ROADS AUTHORITY.**

**BY
HENOK ASSEFA GELETU**

JUNE, 2021

ADDIS ABABA, ETHIOPIA

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**A THESIS SUBMITTED TO ST, MARY UNIVERSITY SCHOOL OF
GRADUATE STUDENT IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTERS OF
ARTS IN PROJECT MANAGEMENT.**

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JUNE, 2021

ADDIS ABABA, ETHIOPIA

DECLARATION

I declare that this thesis entitled "**Factor Affecting the Success of Road Project in Addis Ababa City Authority**" is the outcome of my own effort and study. 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.

Signature_____ **date**_____

Henok Assefa Geletu

Certification

This is to verify that the thesis prepared by Henok Assefa Geletu entitled “**Factor Affecting the Success of Road Project in Addis Ababa City Authority**” and submitted in partial fulfillment of the requirements for the Degree of Master of Arts in project management. It complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Signed by Examining Committee:

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Chair of Department or Graduate Program Coordinator

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DEDICATION

To my mother, Yemtubezena Woldeyes K/mariam, the one who taught me value my self!

Table of Contents

DECLARATION	iii
CERTIFICATION	iv
ACKNOWLEDGEMENT	v
DEDICATION	vi
List of figures	ix
List of Tables	x
ACRONYMS	xi
ABSTRACT	xii
CHAPTER ONE	13
INTRODUCTION.....	13
1.1. Background of the Study	13
1.2. Statement of the problem	15
1.3. Research Questions	16
1.4. Objectives of the Study	16
1.5. Significance of the Study	17
1.6. Scope of the Study	17
1.7. Limitation of the Study	17
1.8. Organization of the paper.....	18
CHAPTER TWO	19
REVIEW OF RELATED LITERATURE	19
2.1. Theoretical Review	19
2.1.1. Definition of Project	19
2.1.2. Measures of project Success.....	19
2.1.3. Project Success Criteria	20
2.1.4. Construction Project	21
2.1.5. Who are the Construction projects Participants?.....	21
2.1.6. Capital in Construction Projects	22
2.1.7. Managerial Skills in Construction Projects	22
2.1.8. Organizational Culture	23
2.1.9. Technical Skills	24
2.1.10. Road Construction in Ethiopia	25

2.2.	Empirical Review.....	26
2.2.1.	Factors Affecting Success of Projects	26
2.2.2.	Cost over Runs.....	26
2.2.3.	Delays	27
2.2.4.	Quality of Projects	28
2.2.5.	Factors affecting success of roads construction in Ethiopia.....	29
2.2.6.	Conceptual Framework.....	29
CHAPTER THREE.....		31
RESEARCH METHODOLOGY		31
3.1.	Introduction.....	31
3.2.	Research Approach and Design	31
3.3.	Data Type and Source	32
3.4.	Sampling Design and Sample size.....	33
3.5.	Data Collection Methods	34
3.6.	Data Analysis and Presentation	35
3.7.	Ethical Standards and Procedures.....	35
3.8.	Reliability Analysis.....	35
CHAPTER FOUR.....		37
DATA PRESENTATION, ANALYSIS AND INTERPRETATION		37
4.	Introduction	37
4.1.	Presentation and Analysis of Quantitative Data	37
4.2.	Correlation Analysis	58
4.3.	Presentation and Analysis of Qualitative Data	60
CHAPTER FIVE		63
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS		63
5.1.	Introduction.....	63
5.2.	Summary of Findings.....	63
5.3.	Conclusion	64
5.4.	Recommendations.....	65
5.5.	Recommendations for Future Studies.....	66
REFERENCE.....		67
APPENDICES		71

List of figures

Figure 1: Respondents work position in AACRA	39
Figure 2: Unavailability of non-loan capital sources and loans.....	39
Figure 3: Capacity to access funding for road projects.....	40
Figure 4: Lack of financial management prudence.....	41
Figure 5: Bureaucracies from the steps involved in funding payment	41
Figure 6: Adequate communication on the utilization of fund.....	42
Figure 7: organization value, the mission for the project.	46
Figure 8: lack of communication between parties.	46
Figure 9: liquidity of the organization.	47
Figure 10: Inappropriate overall organizational structure.	48
Figure 11: Material prices escalation.....	50
Figure 12: design errors.	51
Figure 13: Cash flow.....	51
Figure 14: Conformance to Specification	52
Figure 15: Average delay due to right of way problem.	53
Figure 16: percentage of orders delivered late.....	53
Figure 17: Average delay in claim approval.....	54
Figure 18: Average delay in regular payments.....	54
Figure 19: Frequent design change.....	55
Figure 20: Average Delay because of Material Storage.....	55
Figure 21: Change in scope of the project /variation order.	56

List of Tables

Table 1 Sample Size Distribution	34
Table 2 Reliability Analysis.....	36
Table 3 Demographic Data of Respondents	38
Table 4 Poor site Management	42
Table 5 Unavailability of professional construction management	43
Table 6 Poor problem solving skills and techniques	44
Table 7 Poor Estimation of the Project Time.....	44
Table 8 Slow Discussion Making by Owners.....	45
Table 9 Project manager's capability and experience, Material selection, Acceptance of new technology, Ability to meet project deadline, and Lack of Quality assurance /control.	48
Table 10 Unavailability of personals with high experience and qualification, Conformance to specification, Quality of raw materials and Quality of equipment's in project.	56
Table 11 Correlation Analysis	58

ACRONYMS

AACRA; Addis Ababa City Roads Authority.

AAWSA; Addis Ababa Water and Sewerage Authority.

CM; Construction Management.

CSFs; Critical Success Factors.

ERA; Ethiopian Road Authority.

FIDIC; International Federation of Consulting Engineers

GDP; Gross Domestic Product.

GNP; Gross National Product.

RSDP; Road Sector Development Program.

SPSS; Statistical Program for Social Scenes.

ABSTRACT

Construction industry plays a major role in development and achievement of the goals of society. In Ethiopia like other countries, construction industry is one of major industry contributing significantly in the growth of socio-economic development. Addis Ababa City Roads Authority is responsible for administration and construction of Asphalt surfaced and gravels surfaced Roads at the capital of Ethiopia. Yet, the organization has been challenged to deliver its projects efficiently. The general objective of this research is to examine factor affecting success of the project's in Addis Ababa city roads authority. For this study Primary data were collected through administrative questionnaire and key informants interview. The sample populations were 157 which are selected from contractor, consultant and engineers and the quantitative part of the results were analyzed by using SPSS. Reliability analysis and Pearson correlation were made. The other method used was the interview that in turn helps to triangulate the result. The interview results were analyzed in a step by step thematic manner.

Finally, both quantitative and qualitative findings were summarized, concluded and recommendations were given. The reliability of the scales and the correlation of variables were tested using the Cronbach's Alpha and Pearson Coefficient. The study found that the four main factors that influenced success of road construction projects in Addis Ababa included capital availability, management skills, organizational culture and technical skills. Availability of capital is the greatest studied factor influence project success in Addis Ababa. The study found availability of capital has major positive correlation with success followed by managerial skill, Technical skills and the least factor is organizational culture and for better control over cost, time and quality contractors need to assign experienced employees and use of software (application) to plan, monitor and control. However, it was revealed that well-finance programmers, ground exploration, adequate allocation of budgets, complying with the contracts and continuous training and transfer of knowledge would help counter to these challenges. Therefore construction project should work to minimize the factor that affects the road projects by upgrading the above points to accomplish successful project.

Key words: - Capital, Management skill, Organizational culture, Technical skill, Cost overrun, Schedule variance, Sources of delay.

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

As (Navon, 2005) Construction industry plays a major role in development and achievement of the goals of society. Construction industry has complexity in its nature because it contains large number of parties as clients, contractors, consultants, stakeholders, shareholders and regulators. And the success of the construction industry is affected by national economies.

One approach to studying project success is to focus on factors leading to the project success (Gudiene, 2014). Over the past few decades the investigation on project critical success factors has attracted the interest of many researchers and practitioners (Tabish, 2011) and (Gudiene, 2013). (Rockart, 1982) defined “those factors predicting success on projects”. (Reh, 2016) defined project critical success factors as “a course of action which is pursued to reach project objectives”.

A large body of research elucidates the importance of project success factors in the construction industry. For example, (Chua, 1999) concluded that the identification of the success factors will enable limited resources of time, manpower and money to be allocated appropriately. While, (Yu and Kwon, 2011) recognized that without a common understanding of the success factors of a project, it is very difficult to monitor and control project success effectively. Consequently, the identification of appropriate success criteria is important for project owners and managers, who need a specific and measurable framework for tracking key project outcomes.

On the other way, (McCabe, 2008) and (Chan,1996) showed the importance of success factors for managers of construction projects as it represents a vital factor for managers to improve their organization in the sense that it will indicate the progress is being made in particular areas. Furthermore, project managers attend to these success factors in an intuitive and ad hoc fashion as they attempt to manage and allocate resources across various project areas.

According to (Flyvbjerg and Buhl, 2004) many factors might be responsible for cost overruns and late completion times and quality problems. Cost overruns are mostly caused by 'Underestimation of costs to make the projects.

One of the most important contributing factors to the magnitude of cost overrun in large transportation projects are project delays. More viable, addition of scope during later stages of project planning and even during construction, changed conditions, etc. Furthermore, the length of project development phase from planning to construction seems to be a major factor in the extent of cost overrun.

On the other hand, studies have revealed that schedule slippages can be caused by, 'inaccurate time estimation. (Haseeb, 2011) 'Financial status of the contractor' (Mahamid, 2013) slow site clearance, inflation, progress payments delay by owner, inaccurate cost estimation, and delay in commencement (Siraw, 2011).

As the organization under the study is involved in infrastructure projects that are not executed for commercial purpose, the success dimensions that are linked with business functions will not be addressed in this study.

In Ethiopia like other countries, construction industry is one of major industry contributing significantly in the growth of socio-economic development. The construction industry in Ethiopia has been developing tremendously since 2001. Studies by (Zewdu and Aregaw, 2015) indicated that the GDP contribution of the industry has been raised to 5.6% and approaches to the sub Saharan average (6%).

The construction industry is truly the engine of national economy through which the total of physical development is achieved. The construction industry is a vital element of the economy and has a significant effect on the efficiency and productivity of other industry sectors.

So that, what we can learn from studies that the factors affecting the success of projects might vary in different situations. So, this study was planned to identify the factors affecting the success of projects in the context of Addis Ababa City Roads Authority. By identifying factors affecting the success of road construction projects in Addis Ababa this thesis was provide a very good insight for further research.

1.2. Statement of the problem

Successful construction industry plays an important role for a country's economic development. The construction industry plays significant role in the economy of developing countries. For example, in many developing countries, major construction activities account for about 80 % of the total capital assets, 10 % of their GDP, and more than 50 % of the wealth invested in fixed assets. In addition, the industry provides high employment opportunity, probably next after agriculture (Achuenu, 2013). Despite the construction industry's significant contribution to the economy of developing countries and the critical role it plays in those countries development, the success of the industry still remains generally low.

As (Ofori, 2006) concluded, the construction industry in developing countries failed to meet expectations of governments, clients and society as a whole. Similar to the case with other developing countries, the Ethiopian construction industry shares many of the problems and challenges; industry is facing in other developing countries, perhaps with greater severity. Given the critical role the construction industry plays in Ethiopia and other developing countries, and the poor level of success of the industry in those countries, improving the success of the industry ought to be apriority action.

Addis Ababa City Roads Authority is responsible for administration and construction of Asphalt surfaced and gravels surfaced Roads at the capital of Ethiopia. The authority has been responsible for undertaking and administering road construction projects since 1998 E.C. The Authority has done remarkable progress in the city roads expansion and up grading since its establishment.

Yet, the organization has been challenged to deliver its projects efficiently and confirming to the expected level of standard. Planned schedules and budgets are frequently missed and technical specifications of the deliverables fail to meet the standards.

On the other hand, scholars argue, in order to improve projects' success, the factors for project success are essentially important to be identified.

As it was reported in the report of (ERA, 2016) completion of a project is considered as the most important factors of successful projects, which help to decrease problems for all parties and give new chances to construct other related projects. It also helps to increase the profits and development of construction industry. The accomplishment of the first 10 years Road

Sector Development Program reveals that the execution of most of the road projects resulted in cost and time overruns.

Besides, a study ‘Analysis of factors to time over run on Addis Ababa City Roads Authority’ conducted by (Siraw , 2016) revealed that Addis Ababa City Roads Authority was short of achieving what was planned in all Ethiopian calendar years between 2000 and 2005 and 80 percent of the projects suffered time overrun, in efficient cost administration and low on quality. So that, it is crucial to study the Factors Affecting Success of the Road Projects in Addis Ababa city Roads Authority to fill the above mentioned gaps.

The primary objective of this study is to assess factor affecting success of the project’s in Addis Ababa city roads authority so that it were possible to recommend on the ways to mitigate the occurrence of inefficiency of projects in the authority and the technical specification problems of the deliverables.

1.3. Research Questions

The study is going to be guided the following key research questions

1. What is the influence of availability of capital, management skills, organizational culture and technical skills on project success in Addis Ababa city roads authority?
2. What are the effects of road construction project delay in AACRA?
3. What are the factors that affect the cost & quality of road construction projects in AACRA?

1.4. Objectives of the Study

1.4.1. General Objective

The general objective of this research is to examine factors affecting success of the projects in the case of Addis Ababa city roads authority.

1.4.2. Specific Objectives

The specific objectives of this study are dissecting out from the main objective of the study. These are:

1. To examine the influence of the availability of capital, management skills, organizational culture and technical skills on project success in Addis Ababa city roads authority.
2. To investigate effect of road construction project delay in Addis Ababa city roads authority. And
3. To assess the factors that affect road projects cost & quality in AACRA.

1.5. Significance of the Study

The significance of this study can be more of practical but it has also some theoretical significances. Practically the study contributes something important for the Addis Ababa roads authority. By studying the factors for AACRA, the study result benefits the road construction management team to identify a framework that can be used to improve the future success of projects. Theoretically, it has significance to the researchers in this area. The study will aim at contributes to the academic literature, road construction management team and for other stake holders.

The study helps in application of training to policy makers to address practical problems in the sector, and to provide insights to today's and the future managers on the importance of properly road construction completion. The study inspires further researchers on the area to research as it's not exhaustive.

1.6. Scope of the Study

This study is delimited conceptually and in terms of participants. Conceptually, it is focused on identifying the factors affecting road project success in Addis Ababa city road authority. In terms of participants, it was conducted in AACRA and the participants are the engineers, consultant and road contractor who are involved in road construction projects in Addis Ababa city road authority.

1.7. Limitation of the Study

Due to time constraints, this thesis did not cover other institutions. Additionally, a success story of AACRA was not including here in this paper. This research was done on AACRA which is

found in Addis Ababa. Therefore, the generalization of the study result for those around authorities out of Addis Ababa may not be the same, since their present circumstances is difficult from AACRA.

1.8. Organization of the paper

The study is organized in the following ways: Chapter one contains a background to the study, the research problem, research objectives and questions, significance and scope of the study. Chapter two consisting review of related literatures those are theoretical, empirical review and conceptual framework, and so forth. Chapter three describes the research “methodology” population, sample size with appropriate sampling method design that are used in the study. Chapter four includes the results from the study, analysis and integration of theory with empirical data. Finally, Chapter five includes the conclusions from the study, a summary of the findings and recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. Theoretical Review

The construction industry is truly the engine of national economy through which the total of physical development is achieved. The construction industry is a vital element of the economy and has a significant effect on the efficiency and productivity of other industry sectors. One cannot think of widespread investment in manufacturing, agriculture, or service sectors unless the construction results of infrastructure facilities are in place. In some of the developing countries, the growth rate of construction activity exceeds that of population and of GDP (Chitkara, 2004).

2.1.1. Definition of Project

A project is a group of tasks, performed in a definite time period, in order to meet specific set of objectives. It is likely to be a one-time, has a life cycle with a specific start and end date, and it has budget and likely to require the use of multiple resources, most of which may be scarce and have to be shared among others. It may require the establishment of a special organization or the crossing of traditional organizational boundaries (Harvey, 1999) and (Smith, 2003) define a project as a group of activities undertaken to meet one or more specific objectives. The project objectives could include solving a problem of potholes in the roads. Projects are often divided into smaller components or activities, usually based on technical and functional disciplines.

2.1.2. Measures of project Success

According to the (PMBOK, 2013) Guide, since projects are temporary in nature, the success of the project should be measured in terms of completing the project within the constraints of scope, time, cost, quality, resources, and risk as approved between the project managers and senior management (PMBOK, 2013). For a project to be successful, it is essential to understand the project requirements right from the start and go for project planning which provides the right direction to project managers and their teams and execute the project .A successful project is one that is delivered on time and managed within the budget.

The traditional view of project success is to accomplish all of the schedule, budget, and technical objectives as planned (Harvey, 2002). Ideally projects were considered totally successful if it gets completed on time, within budget and performs exactly to the designer's specifications. These three variables define the overall goals of a project; therefore, any project that is "on time, on budget, high quality" is declared a success. The difficulty, however, exists in their relationship to one another (Versuh, 2003).

2.1.3. Project Success Criteria

Road project objectives in Ethiopia are beyond the traditional Golden Triangle of time, cost and quality. Project objectives vary along four dimensions: Different stakeholders have different objectives (client and contractors are not the only ones worth considering) and objectives change for each major phase in project life cycle and also they have a ranked dimension (Versuh, 2003).

Objectives vary with type of projects that could be different ownership and motive, necessity, opportunity, reputation and research. Trade-off among project objectives is usually necessary. According to (Versuh, 2003) some of the success criteria for the success of projects are the following.

- **Cost and time** should be included, especially if project is not completed. Since many of projects in AACRA are characterized by cost overrun and delays, the inclusion of this criterion is paramount for projects 'success.
- **Meet initial project technical specifications.** Quality is usually compromised and hence quality assurance, in our opinion, can only be made by adherence to initial specification.
- **Meet project objectives** or project contributes to strategic, tactical and operational goals of the consultant Client's/Contractor's company both financially and technically.
- **Satisfaction** of user, project team, contractor, client and organization and donor organizations.

Other criteria are also relevant even if they may not entertain much compromise. As (Harvey, 2002), personal growth, evaluation of quality of technical management process, separate product evaluation in terms of maintainability, and durability are some other types of the success of

projects. The definition of project success is subjective. However, it is related to the degree of achievement of the project success criteria stated above.

2.1.4. Construction Project

As (ChitKara, 2005) construction projects' as high- value, time bound, and special construction missions with predetermined success objectives. Construction project development involves numerous parties, various processes, different phases and stages of work and a great deal of input from the public and private sectors (Wang, 1994).

2.1.5. Who are the Construction projects Participants?

According to studies the following are among the active participants of any construction projects.

Construction clients: - Studies indicate that little attention is given to the clients in the construction industry and there is a paucity of research that allows one to better understand the key roles of clients. (Chuan, 2006) argue that poor project success may not necessarily be due to the incompetence of anyone else but the client's actions before, during and after the project.

Construction consultants:-The nature of the tasks assigned by the clients to consultants varies (Chitkara, 2005) but generally consists of: Project feasibility engineering investigations, coordination of designs and drawing works. They also estimate, plan; budge; prequalify construction agencies; and award contracts to the successful bidders; designing project organizations for executing works and developing standard operating procedures and systems; developing detailed construction plans; supervising works; including administration of contracts and controlling of project time, cost, quality and scope management. These are the activities that determine the future actions and success.

Contractors:-Construction contractors play an important role in the construction projects as they execute most of the construction works. A competent construction contractor is one of the indispensable conditions of a proper process and completion of a construction project according to (Xiaohong, 2011).

2.1.6. Capital in Construction Projects

It is believed that funds play a crucial role in implementation and financing of projects, adequately funded road projects are completed on time and limited costs are involved. On the other hand, poorly funded road projects are more likely to delay in completion time; this exposes them to huge costs which might eventually lead to project success. concluded that availability of adequate funds a factor which affect success of road development projects in developing economies since most of them cannot be able to finance road projects on Other sources of funds for road construction projects include loans, donations, grants among others. (Kamau, 2013) further emphasizes that one of the main factors that affect road construction projects is lack of adequate finances to ensure successful implementation this causes delays of project completion which attracts more costs and thus impact negatively on project success.

And also the most successful projects are adequately funded. He argues that with enough finances it is easier to come up with a strategic plan which acts as a guide on how the activities of the projects were implemented and the cost that were involved. This also includes a time frame that dictates the time that each activity will take and the project implementers. These activities however cannot be successfully deliberated without an adequate allocation of finances (Gundry and Welsch, 2011).

2.1.7. Managerial Skills in Construction Projects

Management as the act or skill of controlling and directing the affairs of a business, managerial skills are personality and traits that are utilized by the management to execute a task. The manner in which the management utilizes their skills and knowledge is critical in the implementation of projects. The management team in charge of making decisions and implementation policies for the implementation of road projects. Management is challenging tasks that require skills to accomplish. According to (Money, 2010) there are three sets of managerial skills that are needed to perform managerial roles; conceptual skills, human relations skills and technical skills. Conceptual skill can be described as the capability of the management to visualize the organization as a whole.

This skill enables the management to identify the causes of the problems and devise ways of solving such kind of problems. They are needed by the management team since they spend most of their time in planning, organizing and solving problems in the organization. Human relations skills are also called interpersonal skills. It is described as the capability to work with individuals. It aids the managers in understanding, communicating and working with employees. This enables them to lead, inspire and encourage the employees in project implementation. Technical skills are the capability to accomplish a task. These skills aid the management team to use various procedures and techniques in project execution (Rwigema, 2014).

The top management plays an essential role in facilitating implementation of road construction projects. Management of projects is not an easy task. It requires a competent and professional team of top management who has a relevant experience in management (Deakins, 2013). A competent management team is able to communicate effectively, plan and facilitate projects implementation.

(Mashud, 2010) recommended that top management should be able to manage their time effectively, through training, planning, delegating, aligning management strategies, organizing meetings and making maximum use of available time.

2.1.8. Organizational Culture

As it is clearly explained in (Parker and Bradley, 2011) organizational culture involves norms, values and beliefs that translate into behavior that guide social and psychological setting of an environment. Culture is characterized by sharing values, and principles between employees in the organization. It is a product of so many factors that entail strategy, employee productivity and management styles.

It also includes organizational vision, values, norms, symbols, systems, language, assumptions, beliefs and habits. Culture is considered as an important factor during projects implementation. It defines appropriate behavior on how the employees and the project implementers relate and interact during project implementation. The cultural setting of an organization may influence the employees' performance. A supportive culture unites and encourages the employees to work towards similar goals (Ahadzie, 2011).

The supportive role of the organizational culture in cultivating the norms and values is that motivates and encourages employees to work in the same direction. This contributes positively to organizational goals and objectives (Parker and Bradley, 2010). (Rwigema, 2014) maintains that project implementers should ensure that project construction activities are in line with the employees' functions and responsibilities. The top management should ensure that road construction needs are addressed by providing facilities and resources to support the process of implementation. Project implementers and the employees should have an open communication on project activities. This should include an integrated system of information sharing that allows sharing of information between project implementers and the employees.

This helps to mitigate communication costs and coordination of activities. The top management should also show allow flexibility through establishing and maintaining a good working relationship with the employees in order to create a platform that accommodates new ideas and delegation of authority. Also, the top management should match employees' knowledge and skills with their duties and responsibilities to ensure that they realize their full potential to contribute to successful project implementation (Moore and Buttner, 2011).

2.1.9. Technical Skills

Technical skills can be defined as knowledge and abilities that is needed to execute a task. Technical skills are the ability to perform role with the help of certain tools and equipment's, (Sambasivan, 2016). Such tools may be tangible or intangible. Employees having technical skills accomplish their roles more efficiently because they possess practical aspects and expertise which in most cases is acquired through specialized training and development programs. An organization seeking to achieve successful projects should develop and maintain employees with technical skills and expertise to accomplish their tasks efficiently. This can save the project huge costs and contribute towards efficient flow of activities. (Iyer and Jha, 2015) contend that projects that perform have been associated with presence of a technical team and a lean and competent team of employees. Project implementers lead the organization in project implementation; this is an important role that requires the implementers to have technical skills to effectively guide employees towards implementation of projects. Organizations that exploit its employees' technical skills perform its functions efficiently, this helps to streamline coordination

of activities and work towards set goals and targets. (Karim and Marosszeky, 2011) posit that through continuous training and development programs, employees are able to sharpen their technical skills and expertise. These skills assist employees to easily solve technical problems and save the organization costs of hiring expertise. In so doing, this creates a platform to employees to exploit their innovation in providing products and services that add value to customers. In projects implementation, employees should be engaged in trainings to improve their skills in implementation and practical aspects of use of tools and equipment's that support project implementation (Zulu and Chileshe, 2010).

2.1.10.Road Construction in Ethiopia

As it is found in (Rahel, 2016) road sector construction projects in Ethiopia have an influence on the development strategies of the country. The development strategies of a country achieved through successful road projects intended to improve accessibility of the rural area; lower costs associated with transport maintenance and open more areas for development activities. Road projects, involving large amount of capital, also contribute to the total economy through job creation and in a ripple effect to other business activities.

According to (Rahel, 2016) despite the improvement seen in performance and productivity within the sector, there still remain problems of delay, cost overrun and poor quality of road construction projects. It is also identified that there is a need for further strengthening of institutional capacity, adoption of new construction technologies and modern project management principles, and additional regulatory reforms in order to maximize the efficiency of the Ethiopian road construction industry. To this end the industry is expected to refine its processes for efficient delivery of projects in terms of time, quality and cost.

Three perspectives can explain why road construction has been a domain of the state in Ethiopia.

First, from an economic perspective, road infrastructure is a classic example of public good that is characterized by non-excludability. As a consequence, the private sector has no interest in providing roads. Hence, road construction has been a domain of the Ethiopian state throughout its history.

Second, from political perspectives road infrastructure and accessibility of peripheral rural areas of central importance for the states monopoly on the legitimate use of physical force in the territory.

Third, in the context of Ethiopia's geography, patterns of settlement and economic activity, road transport plays a vital role in facilitating economic development as 95% of the movement of people and goods are still carried out by road transport. Road transport provides the means for the movement of peoples and agricultural products from rural to urban areas and movement of industrial goods, modern agricultural inputs and peoples from urban areas to rural areas. Road transport also provides means for the utilization of land and natural resources, improved agricultural production and marketing, access to social services, and opportunities for sustainable growth (ERA 2014).

2.2. Empirical Review

2.2.1. Factors Affecting Success of Projects

Various researchers have studied different types of projects and identified different factors affecting successfulness of projects. The factors that affect the road construction projects success is the following below will present various factors contributing for cost overrun, project delays and quality problems as identified by number of studies made in various countries.

2.2.2. Cost over Runs

Cost Overrun is the expression which is used to represent the variance between the original approved cost and the final cost deserved. Anything done to a project, including time overrun would be reflected in the cost.

Different studies have revealed that there are various factors responsible for cost overrun of Construction projects (Le-Hoai, 2008) ranked the three top causes of cost overruns in Vietnam as material cost increase due to inflation, inaccurate quantity take - off, and labor cost increase due to environment restriction. (Kaliba, 2009) concluded that cost escalation of construction projects in Zambia are caused by factors such as inclement weather, scope changes, environment protection and mitigation costs, schedule delay, strikes, technical challenges and inflation. Al-(Juwait, 2002) listed the following as factors that cause cost overrun on construction projects in

Saudi Arabia; effects of weather, number of projects going on at the same time, social and cultural impacts, project location, lack of productivity standards in Saudi Arabia, level of competitors, supplier manipulation, economic stability, inadequate production of raw materials by the country, absence of construction cost data. In another study on construction projects in Nigeria, conducted by (Okpala and Aniekwu, 1988) it was found that architects, consultants and clients agreed that shortage of materials, finance and payment of completed works and poor contract management were the most important causes of cost overruns. Mansfield, (Ugwu and Doran, 1994) studied the success of transportation infrastructure projects in Nigeria and concluded that material price fluctuations, inaccurate estimates, project delays and additional work contributed most to cost overruns. During a review of public sector construction projects in Nigeria, (Dlakwa and Culpin, 1990) revealed that the three main reasons for cost overruns are “fluctuations in material, labor and plant costs, construction delays and inadequate pre-planning.

2.2.3. Delays

Researches in developing countries especially Africa have made progress in determining the causes behind project delays. (ABJ Journal of advanced research, 2016) , (Kaliba, Muya, and Mumba, 2009) described in their study that, the major causes of delay in road construction projects in Zambia were delayed payments, financial deficiencies on the part of the client or contractor, contract modification, economic problems, material procurement, changes in design drawings, staffing problems, equipment unavailability, poor supervision, construction mistakes, poor coordination on site, changes in specifications, labor disputes, and strikes.

In Uganda, (Agaba, 2009) attributes delays in construction projects to poor designs and specifications, and problems associated with management and supervision. In their study, (El-Razek, Bassioni and Mobarak , 2008) discovered that delayed payments, coordination difficulty, and poor communication were important causes of delay in Egypt. Studies outside the African continent seem to also have identified almost similar causes. (Sambasivan and Soon, 2007) and (Alinaitwe, 2008) established that poor planning, poor site management, inadequate supervisory skills of the contractor, delayed payments, material shortage, labor supply, equipment availability and failure, poor communication and rework were the most important causes of delays in the Malaysian Construction Industry. (Kouskili and Kartan, 2004) identified the main factors affecting cost and time overrun as inadequate/inefficient equipment, tools and plant,

unreliable sources of materials on the local market, and site accidents. Hence, the list of causes confirm above agree with the findings of (AbdMajid and McCaffer, 1998) who concluded that if such causes are effectively dealt with, then time overrun can effectively be mitigated.

2.2.4. Quality of Projects

Quality is one of the important key success indicators of a construction project which may cause cost overrun and time delays (Heng Li, vol.18 (4) 2000). Quality can be defined as the level of conformance of the final deliverable to the customer's requirements. One cause of usual project failure is that quality is overlooked or sacrificed so that a tight deadline can be met. It is very helpful to complete a project on time, only to discover that the thing delivered will not work properly (PMI 2008).

Researchers have explored various factors affecting quality of projects fundamentals of which are discussed below. Special attention is once more given for identifying the factors influencing construction projects.

The quality is a key function in all infrastructure development environments like cost and time. It becomes one of the vital factors in any construction project (Heng Li, vol.18 (4) 2000).

Quality is affected by shortage of materials, equipment, design changes, error in cost estimation and lack of budget. The other factors affecting quality are deficiencies in scheduling, inappropriate planning and unclear evaluation standards (Ibironke, 2011). The significance of these factors depends on type of projects, working environment and local culture.

In construction projects, lack of quality results in delays, cost overrun and unsafe structure (FIDIC Quality of Construction - Online). There are three types of costs associated with quality. **First one is appraisal cost:** the cost of testing and inspection, **second one** is failure cost: the cost of rework and **third one is** prevention cost: the cost of maintenance and better design (J. L. Ashford, Management of Quality in Construction - Online). Many researches have been carried out both in developed and developing countries to investigate the factors that have a substantial effect on the quality of construction projects.

2.2.5. Factors affecting success of roads construction in Ethiopia

According to (TurkeyWakjira, 2012) the major factors that causes cost overrun in Ethiopian especially in road construction projects is said to be material price escalation. Claims due to late removal of obstructions, failure to give possession of site, late issue of drawings, widening of road section at some towns and change in alignment, scope change, changes in quantity (inaccurate quantities), unforeseen ground condition, construction of additional length and additions (variations). (TurkeyWakjira, 2012) said that, price escalation /price adjustment, variations, right of way, claims and design problems (design risk) are identified as major factors leading to cost overrun. It was also noted that consequential delays related to design modification has contributed to excessive cost overrun, the costs being quantified as time extension cost. Most of the factors such as variations, scope changes, design problems and unforeseen ground conditions are related to lack of clarity and comprehensiveness of documents (survey, design, tender and contract documents) used in the process and poor planning, unable to plan the projects in all dimensions.

(Zerfu, 2009) also stated that poor design and technical specifications were among the major factors for the challenges faced by the Ethiopian Roads Authority (ERA) in road construction projects. The other factors such price escalation; claims, right of way problem and failure to give possession of site are related to economic factor and improper planning respectively. Hence it is essential to address the issues related to right of way before mobilization of the contractor to the site and taking into account factors such as price escalation, location of the project, material and labor availability during the engineering estimate and properly forecast the escalation trend.

(TurkeyWakjira, 2012) in his study of the risk factors leading to cost overrun in Ethiopia federal road construction projects and its consequences examined the effects of cost on the delivery of construction projects in the country. The result of the desk study indicated that out of 30 upgrading and rehabilitation road construction projects investigated, 24 projects (80%) suffered cost overrun in their execution.

2.2.6. Conceptual Framework

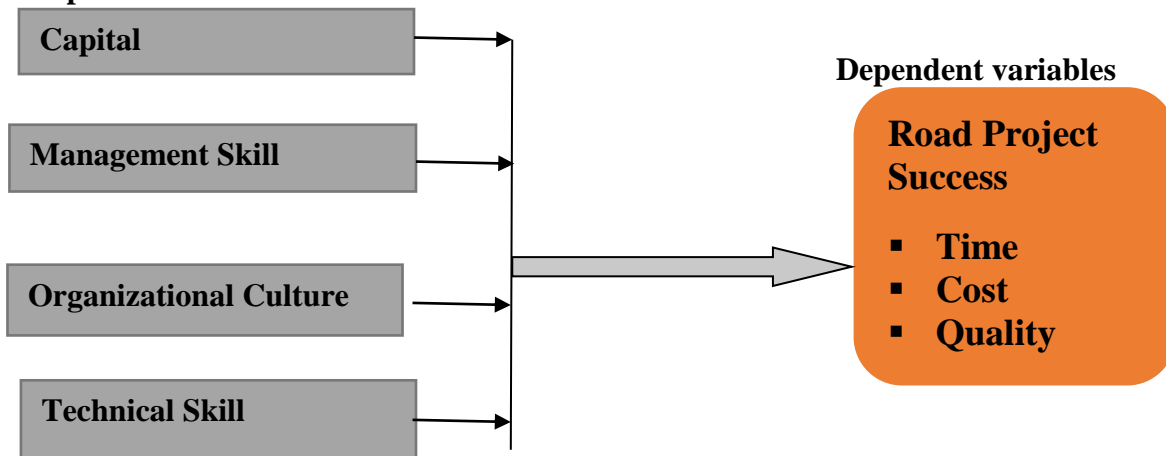
As (Deribsa, 2018), the independent variables are factors that we change in an experiment to ensure clear observations and measurement. The dependent variables on the other hand are the

factors that we observe or measure by varying the independent variables. Dependent variables are named after the fact that they depend on the level and intensity of the independent variables.

So, as illustrated below and explained in (Kamau, 2013) capital is a broad term that can describe the financial assets of a business or an individual. Management skills can be defined as certain attributes or abilities that an executive should possess in order to fulfill specific tasks in an organization. They include the capacity to perform executive duties in an organization while avoiding crisis situations and promptly solving problems when they occur. On the other hand, Company's organizational culture refers to a company mission, objectives, expectations and values that guide its employee. Moreover, technical skill is about the abilities and knowledge needed to perform specific tasks.

As illustrated below, the dependent variables which is assumed can be affected by the independent variables mentioned above are time, cost and quality. The figure below illustrates the relationship between dependent and independent variables and the characteristics or variables that determines each of them.

Independent variables



Adapted from (Ezekiel, 2013)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

A research methodology is a methodical proposition which used to describe how research questions were searched. So that this chapter presents the methodology used to carry out this study that include, the research design, study population and sampling design. Moreover, the chapter includes the data collection methods, research procedures and how the data collected will be analyzed.

3.2. Research Approach and Design

The research design is chosen based on (Girma , 2014) and he stated that the conceptual structure within which research is conducted; it constitutes the blue print for the collection, measurement and analysis of data. The author added that the design includes an outline of what the researcher would do from writing the hypothesis and its operational implications to the final analysis of data. As (Cooper, 2006) is cited in (Fitsumeshet, 2019) a research design provides an operational frame within which facts will be placed, processed through analyzing procedures and valuable research output is produced. This research design was chosen to know stakeholders perception on success regarding time, cost and quality. Descriptive design is very appropriate because the study is concerned with explaining the realities as the main task using mixed methods.

As (Diribsa, 2018) mixed method allows the collection and analysis of qualitative and quantitative information in a single study. The major tenet of mixed method is pragmatism that assumes quantitative and qualitative methods are compatible and can be utilized in a useful way.

Therefore, the research used sequential mixed methods procedure of data collection. According to (Creswell, 2009), Sequential mixed methods procedures are those in which the researcher seeks to elaborate on or expand on the findings of one method with another method. For (Creswell, 2009), this may involve beginning with a qualitative interview for exploratory purposes and following up with a quantitative, survey method with a large sample so that the researcher can generalize results to a population. Alternatively, the study may begin with a

quantitative method in which a theory or concept is tested, followed by a qualitative method involved a detailed exploration with a few cases or individuals.

So that, the design had a two-phase procedure that helped the researcher to organize the research process. It started with a quantitative phase to understand a phenomenon from the point of view of employees of AACRA and from road projects managers, consultants, contractors, supervisors and the like of different sites then moved onto a qualitative phase, semi- structured interview with the management members of AACRA. The research variables were measured using questionnaires designed with the five scale Likert scales (Strongly Agree (SA), Agree (A), Neither Disagree nor Agree (NDN), Disagree (DA), Strongly Disagree (SD)) which had completed by the respondents themselves on their experiences. The level of measurement of the variables in the study constitutes interval scales. But the job level and gender are measured using nominal scale.

3.3. Data Type and Source

3.3.1. Data Type

The sources of data that this research employed were all primary. According to (Malhotra, 2005) Primary data are originated by the researcher for the specific purpose of addressing the problem at hand. There are number of ways to collect primary data like through questionnaires, interview, and checklists, as deemed necessary per the research design undertaken. For this particular research primary data will be obtained by structured questionnaires and interviews.

Using a combination of qualitative and quantitative data can improve an evaluation by ensuring that the limitations of one type of data are balanced by the strengths of another. Thus, mixtures of both qualitative and quantitative data were used to present a more complete and synergistic research analysis.

3.3.2. Data sources

▶ Primary Data Sources

The primary data was collected from managers in the main office, contractor, consultant and Client using a stratified random sampling technique using a standard survey questionnaire to identify the factors that affect project success. The professional employees in those companies

were chosen to fill the questionnaire. That in turn helped to receive unbiased and more accurate response. Key informants interview was also the other mechanism to collect primary data.

▶ Secondary Data Sources

To strengthen the reliability of research data and supplement the information missing in the questioner survey, information was collected from other related researches, Journals, the company procedure and policy and relevant corporate reports.

3.4. Sampling Design and Sample size

3.4.1. Sampling technique

To collect data using appropriate sampling technique that guides the researcher is crucial. This study adopted a stratified random sampling technique to select the sample size. According to (Deribsa, 2018) a stratified random sampling technique requires researcher to divide the population in to sub categories. Stratified random sampling is preferred because it is vital way of developing stratum for different job categories. A representative sample was picked from each of stratified job categories of AACRA.

3.4.2. Sample size Determination

Based on the assumptions, the sample size for estimating a population proportion is from project managers, Contract administrator, project team leaders, supervisors, Engineers, consultants, contractors from the main office of AACRA and different road projects. The sample size for the questionnaire and the key informant's interview was $n \sim 157$.

The sample size for estimating a population proportion is based on the calculation of sample size using (Yamane, 1967) sample size determination technique:

The formula is:

$$n = \frac{N}{1+N(e)^2}$$

Where n = sample size

N = population size/total number of managers, contractors, contract admins, consultants etc employed at AACRA/

1 = constant

e = margin of safety or error margin

$$\text{Therefore } n = \frac{259}{1+259(0.05)^2}$$

n ~ 157

The sampling frame which is the actual set of sampling units,

Table 1 Sample Size Distribution

Occupation	Population Distribution	Proportion in the population (%)	Sample
Manager	15	5.8	(0.058)(259) = 9
Contract administrator	22	8.5	(0.085)(259)=14
Team leader	34	13.1	(0.131)(259)=21
Supervisors	29	11.2	(0.112(259))=18
Engineer	99	38.2	(0.382)(259)=59
Consultants	22	8.5	(0.085)(259)=14
Contractors	38	14.7	(0.147)(259)=23
Total	259	100	157

3.5. Data Collection Methods

Primary data collection instruments were used. Two types of data gathering tools were used for the data collection from different segments of road projects in AACRA, Questionnaire and key informants interviews. Questionnaire was distributed for the selected samples. The researcher is expected accurate answers about factors affecting project success since they are experiencing the day to day activities.

The design was a two-phase procedure that helped the researcher to organize the research process. It started with a quantitative one to understand a phenomenon from the point of view of the samples and then moved onto a qualitative phase: key informant interview from different top level of project management. So that, for the quantitative investigation, the questionnaire was developed and pilot tested to ensure validity and accuracy, and was reviewed before using them

for the final information gathering process. The questionnaire was framed after the well known facts project success factors. On the other hand, key informant interview were chosen to apply to get qualitative data from key informants. The samples for the interview are assumed key informants because they were chosen based on their knowledge on the topics.

3.6. Data Analysis and Presentation

The quantitative part analyzed using software program for the purpose of analysis and control. Descriptive Analysis, Reliability and Pearson Correlation Coefficient were carried out using SPSS. The results were presented via descriptive statistics, percentage and frequencies. The analyzed data was presented using tables and graphs. The qualitative data were analyzed as follows according to (Deribsa, 2018).i.e. identifying the main theme, assign codes for the main themes, and classify responses under the main themes and finally integrating the main themes and responses in to the text.

(Deribsa, 2018) advised interview data analysis have to pay attention to the ‘verbal word’, context, consistency and contradictions of views, frequency and intensity of comments, their specificity as well as emerging themes and trends.

3.7. Ethical Standards and Procedures

According to (Kumar and Kandasamy, 2012) the major ethical considerations in research work are the following:

- **Right to choose;** everyone has the right to determine whether or not to participate in a marketing research project.
- **Informed consent:** Research participants had the right to be informed aspects of a research task. Knowing what is involved, how long it took, and what would be done with the data, etc.
- **Respect for anonymity:** all informants have right to Privacy. This researcher followed all the ethical standards mentioned above.

3.8. Reliability Analysis

Alpha (Cronbach) is a model of internal consistency, based on the average inter-item correlation. Used for multiple Likert questions in questionnaire determine if the scale is reliable.

Thus, if the association in reliability analysis is high, the scale yields consistent results and is therefore reliable. (<https://www.ibm.com/support/knowledgecenter>) Table 9 shows the reliability statistics of AACRA for factor affecting the success of road projects. A Cronbach alpha that each variable indicates in the following table shows a strong level of internal consistency. The total number of items is 34 for the scale.

Table 2 Reliability Analysis

Reliability statistic	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No of Items
Capital	.727	.746	5
Management skill	.699	.710	5
Organizational culture	.231	.593	4
Technical Skill	.650	.688	5
Cost	.726	.725	4
Time	.668	.659	7
Quality	.467	.470	4
Independent and	.787	.890	19
Dependent variables	.751	.746	15

Source: Own Survey Data (2021)

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4. Introduction

In this chapter data presentation, analysis and discussions of findings are elaborated. Samples of 157 employees were selected from a population of 259 employees from the Addis Ababa city road authority and questionnaires were distributed. Amongst 151 questionnaires were obtained from the field. This constitutes 96.17 % return rate.

The data was collected using self-administered questionnaire and through key informants interview schedules. As follows the analysis and discussion presented. Firstly, quantitative data was presented and, the qualitative data was presented by themes. The discussion of findings from the two methods was presented with the analysis.

4.1. Presentation and Analysis of Quantitative Data

4.1.1. Demographic Data

As the table 3 below indicated, male respondents accounted 60.9% while female respondents are 39.1%. When we see their academic background, 7.3% of the respondents were diploma holders, 55.6% were degree holders and 37.1% were MA holders. When we see their duration of employment of the respondents in different positions in projects in AACRA, 21.9% of the respondents stayed 1 to 4 years, 27.8% of the respondents served AACRA from 5 to 8 years, 31.8% of the respondents had an experience of 9 to 12 years and 18.5 % of the respondents have above 12 years of experience. However, the sample still remains to be true representative because of the nature of the population itself it has ratio of 1:3 of female to male. The statistical data shows most of the population of the sample of AACRA young and high level of education.

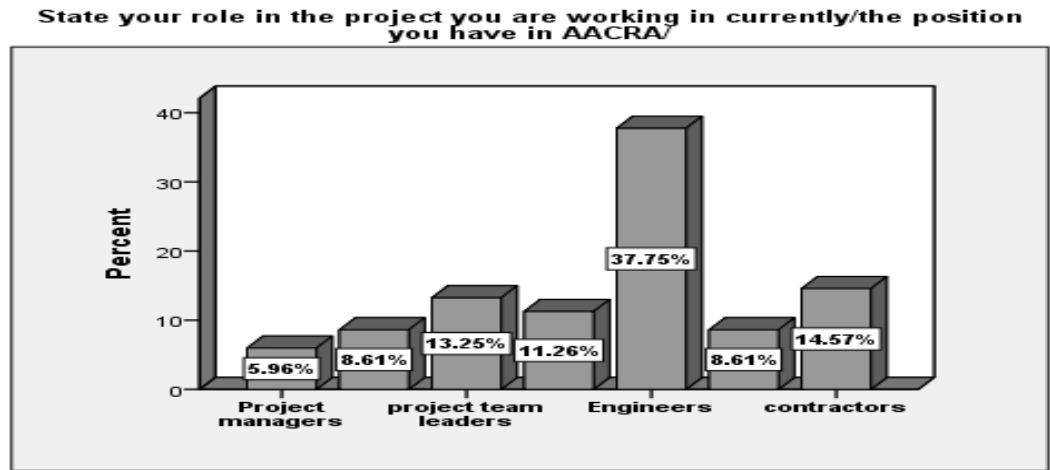
Table 3 Demographic Data of Respondents

	Frequency	Percent
Gender		
Male	92	60.9
Female	59	39.1
Academic Background		
Diploma	11	7.3
First Degree	84	55.6
Master's Degree and Above	56	37.1
Duration of Employment		
1-4 years	33	21.9
5-8 years	42	27.8
9-12 years	48	31.8
Above 12 years	28	18.5
Total	151	100.0

Source: Own Survey Data, (2021)

As we can see from the following graph of the respondents, 5.96 % were project managers, 8.6 % were contract administrator, 13.2 % were project team leaders, 11.3 % were supervisors, Engineers were constituted 37.7 %, consultants 8.6 % and Contractors 14.6 % from the samples chosen. One can see from the table that the respondents are reliable for the variables studied.

Figure 1: Respondents work position in AACRA



Source: Own Survey Data, (2021)

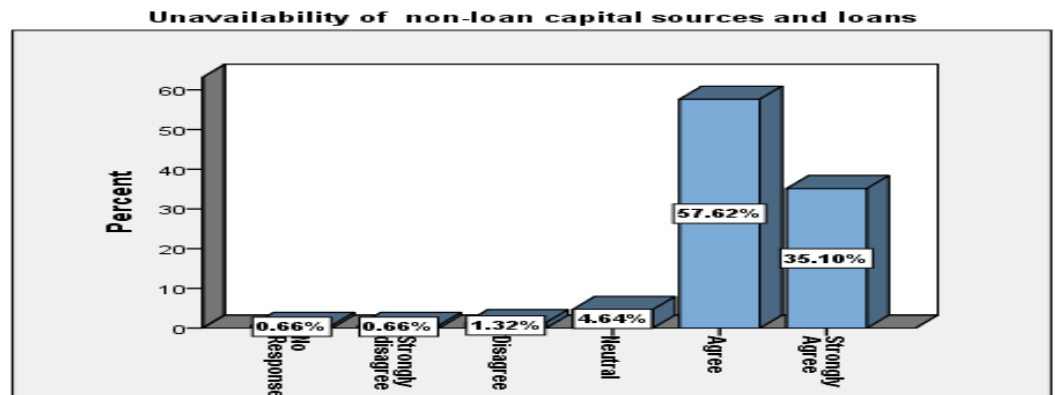
4.1.2. Presentation of Variables

Under this section the study’s independent and dependent variables capital, management skill, organizational culture, technical skill, time, cost and quality were discussed as a step by step logical manner.

4.1.2.1. Capital

Under this sub-variable there were five interrelated statements that show whether the phenomenon exists or not. The statements are availability of non-loan capital sources and loans, capacity to access funding for road projects, lack of financial management prudence, bureaucracies from the steps involved in funding payment and adequate communication on the utilization of fund. The analysis and discussions are presented as follows.

Figure 2: Unavailability of non-loan capital sources and loans

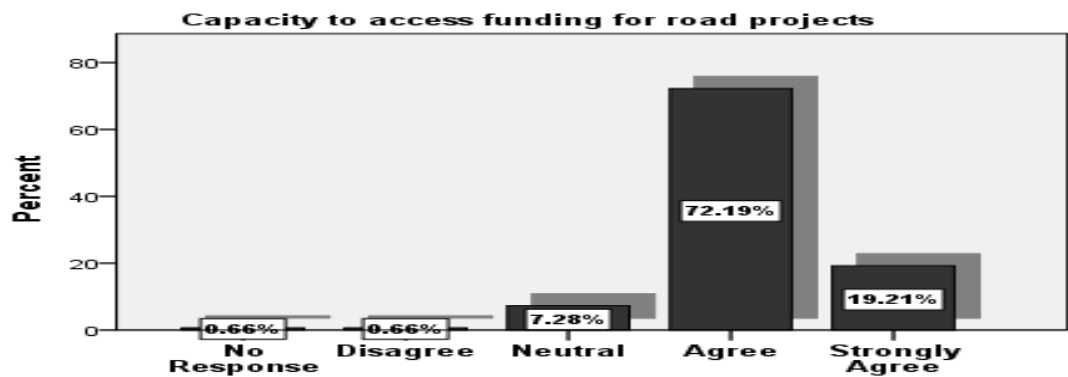


Source: Own Survey Data, (2021)

Figure 2 above displays whether unavailability of loan capital sources are one of the factors of success of road construction in AACRA road projects or not. The response showed that the ones who strongly agree and agree constitute 92.72% of the respondents. Who strongly disagree, disagree & neutral constitutes 6.62%. The rest 0.66% failed to give response for this question.

So that, from the information above, the interpretation could be unavailability of non-loan capital sources and loans is one of the factors of road project delays in AACRA.

Figure 3: Capacity to access funding for road projects



Source: Own Survey Data, (2021)

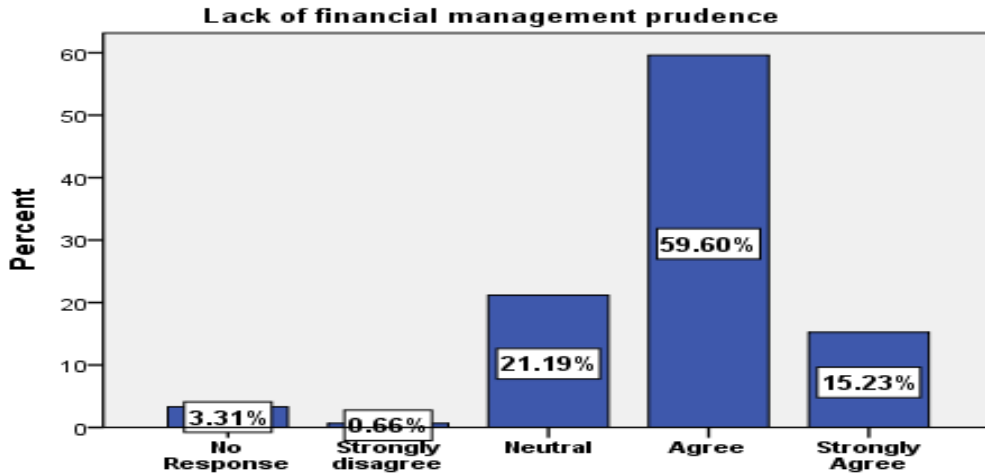
According to (Kamau, 2013) one of the main factors that affect road construction projects is lack of adequate finances to ensure successful implementation this causes delays of project completion which attracts more costs and thus impact negatively on project success.

The above figure of the research result shows that if capacity access funding for road projects is the factor for road project delay at AACRA or not. 72.19% strongly agreed for this statement and 19.21% of the study respondents agreed; whereas, 7.28% remained neutral and 0.66% disagreed and the reset 0.66% didn't give response for this part of the questionnaire.

What does this implies?

So that from the responses get and what the literatures say about the issue, one can conclude that capacity in funding road projects is still not in a position to achieve better results.

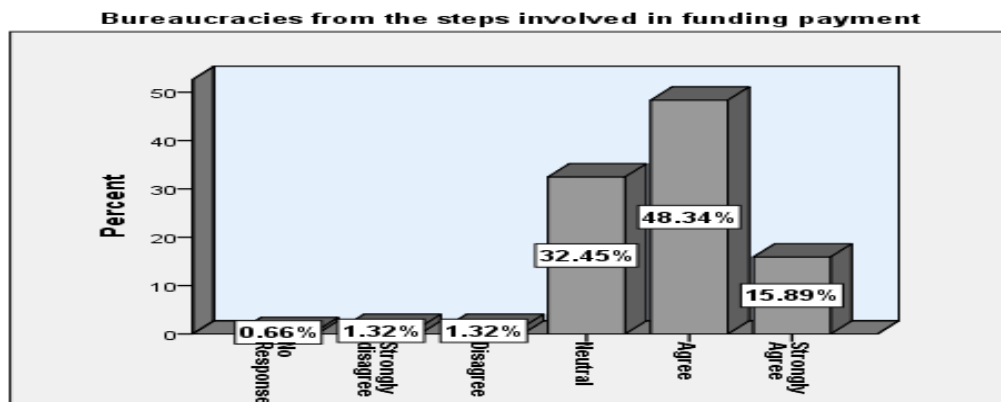
Figure 4: Lack of financial management prudence



Source: Own Survey Data, (2021)

In terms of financial management prudence, figure 4 displays 59.6% of the study respondents agreed that lack of management of financial prudence is one of the greatest factors of road projects in AACRA, 15.23% strongly agree, 21.19% remained neutral on the issue, 0.66% strongly disagreed and 3.31% didn't give response for this question. According to the responses given we can deduce that financial management prudence is one of the factors of road projects delay in AACRA.

Figure 5: Bureaucracies from the steps involved in funding payment



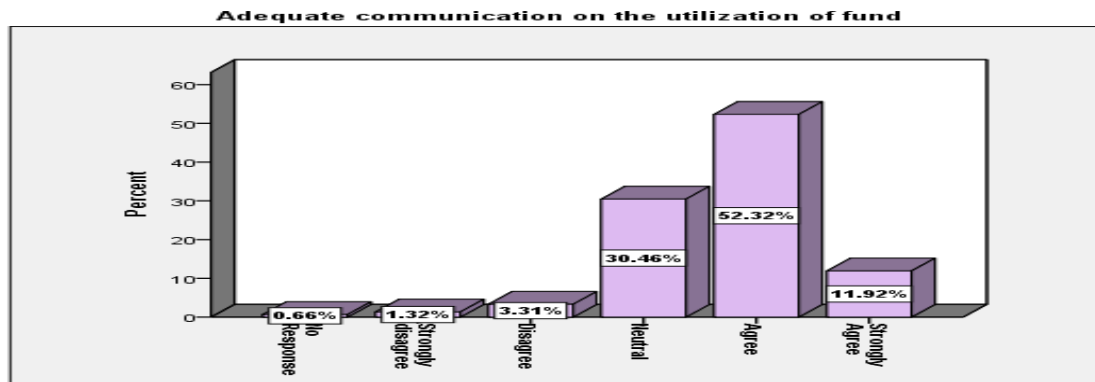
Source: Own Survey Data, (2021)

From figure 5 we can see that 48.34% and 15.89% of the respondents agree and strongly agree on bureaucracies from the steps involved in funding payment is one of the factors of road project success respectively. A big number of respondents remained neutral on the issue of

bureaucracies in funding payments. I.e. 32.45%. The remaining 2.64% of the respondents disagreed and strongly disagreed.

According to the research finding by (karimi, 2020) excessive bureaucracy is one of the factors of project delay and can lead to cost overrun too. So that, one can see from the research finding that bureaucracies from the steps involved in funding payment is one of the factors.

Figure 6: Adequate communication on the utilization of fund



Source: Own Survey Data, (2021)

As showed in the graph above 62.32% of the study respondents agreed that adequate communication on the utilization of fund can affect road projects in AACRA. 11.92% strongly agreed, 3.31% and 1.32% of the respondents disagreed and strongly disagreed on the issue respectively. Large number of respondents i.e. 30.46% remained neutral. What does it mean? The study finding implied that communication on the utilization of fund is the other factor of the success of road projects.

4.1.2.2. Management Skill

Table 4 Poor site Management

Poor site management		
Alternatives	Frequency	Percent
No response	1	0.7
Strongly disagree	1	0.7
Disagree	3	2.0
Neutral	8	5.3
Agree	72	47.7
Strongly agree	66	43.7
Total	151	100.0

Source: Own Survey Data, (2021)

As the table 4 indicated, 43.7% strongly agreed and 47.7% agreed that poor site management is one of the factors of road projects delays in AACRA. 5.3 % of the respondents remained neutral. On the other hand, 2.0 % of the respondents strongly disagreed and 0.7 % disagreed on the issue. 0.7 of the respondents didn't give response.

From the responses given based on the five scales, one can conclude that poor site management is still the greatest factors of road project delay.

Table 5 Unavailability of professional construction management

Unavailability of professional construction management		
Alternatives	Frequency	Percent
No Response	2	1.3
Disagree	1	0.7
Neutral	31	20.5
Agree	95	62.9
Strongly Agree	22	14.6
Total	151	100.0

Source: Own Survey Data, (2021)

As shown in the table above, 14.6 % and 62.9 % of the respondents strongly agreed and agreed respectively that unavailability of professional construction management is one of the technical factors of road projects in AACRA. The greatest deal of number that is 20.5% of the respondents remained neutral. On the other hand, 0.7 % strongly disagreed and 1.3% disagreed on the issue..

So, based on the information obtained above the findings indicated that unavailability of professional construction management is one of the greatest factors of road projects under the variable management skill. This idea is supported by (Deakins, 2013). As Deakins, 2013), managing projects requires a competent and professional team of top management who has a relevant experience in management A competent management team is able to communicate effectively, plan and facilitate projects implementation that in turn affects the completion of projects on time.

Table 6 Poor problem solving skills and techniques

Poor problem solving skills and techniques		
Alternatives	Frequency	Percent
No Response	1	0.7
Neutral	28	18.5
Agree	104	68.9
Strongly Agree	18	11.9
Total	151	100.0

Source: Own Survey Data, (2021)

For the statement “AACRA is becoming the Poor problem solving skills and technique”, the research illustrated that 80.8% of the respondents strongly agree and agreed on the issue. Whereas, 18.5% of them remained neutral.0.7% gave no response. Based on the information obtained one can conclude that the Poor problem solving skills and technique is one of the factors of project success in road projects of AACRA.

Table 7 Poor Estimation of the Project Time

Poor estimation of the project time		
Alternatives	Frequency	Percent
No Response	2	1.3
Strongly disagree	2	1.3
Disagree	5	3.3
Neutral	34	22.5
Agree	75	49.7
Strongly Agree	33	21.9
Total	151	100.0

Source: Own Survey Data, (2021)

According to table 7 above, respondents were asked whether the poor estimation of the project time is one of the factors of project delay under the variable management skill. The data presented above showed that 49.7 % agreed, 21.9% strongly agreed on the issue. 22.5% of the respondents remained neutral. On the contrary, 3.3% disagree and 1.3% strongly disagreed. So, from the information obtained, one can easily understand that poor estimation of projects time is one of the factors of project success in AACRA.

Table 8 Slow Discussion Making by Owners

Slow discussion making by owners		
Alternatives	Frequency	Percent
No Response	2	1.3
Disagree	2	1.3
Neutral	34	22.5
Agree	77	51.0
Strongly Agree	35	23.2
Total	151	100.0

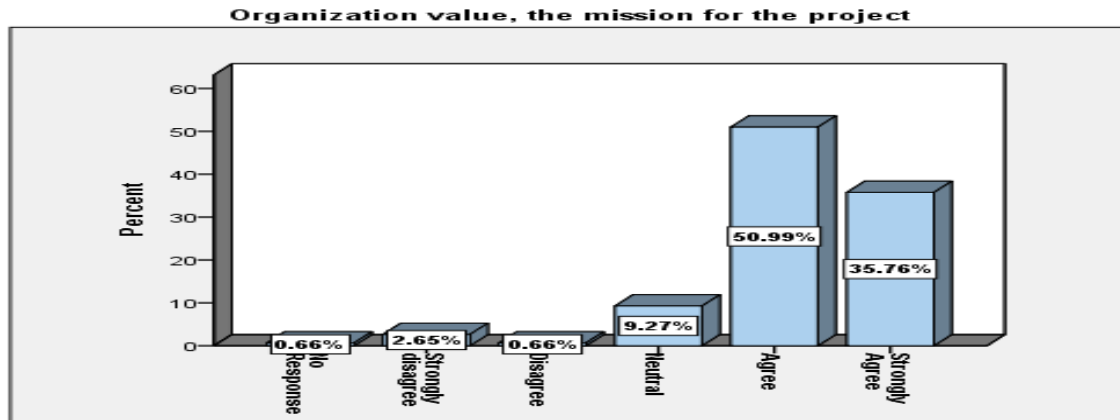
Source: Own Survey Data, (2021)

As table 8 above indicated, from the total respondents of the study, 51 % agreed, 23.2% strongly agreed that slow discussion making by owners is one of the factors for road projects success in management variable. 22.5 % remained neutral again. On the other hand, 1.3 % strongly disagreed and the other 1.3% of the respondent gave no response.

So that, from the information gained above one can conclude that slow decision making by owners is one of the factors of road project success in AACRA under the variable management skill.

4.1.2.3. Organizational Culture

Figure 7: organization value, the mission for the project.

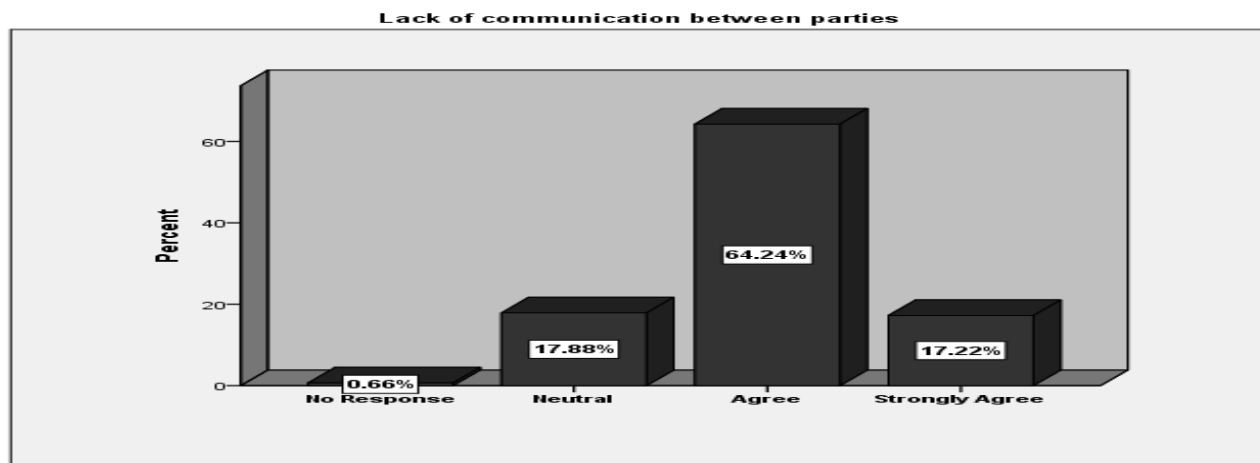


Source: Own Survey Data, (2021)

From the figure above, 35.76% and 50.99% of the respondents strongly agree and agreed that organizational value, the mission for the project is one of the factors of project success under the variable organizational culture. Besides, 9.27% remained neutral, 0.66% disagreed; 2.65; strongly disagree and 0.66% gave no response.

Based on the information obtained one can conclude that organizational value is key for the mission for the project success in road projects of AACRA.

Figure 8: lack of communication between parties.



Source: Own Survey Data, (2021)

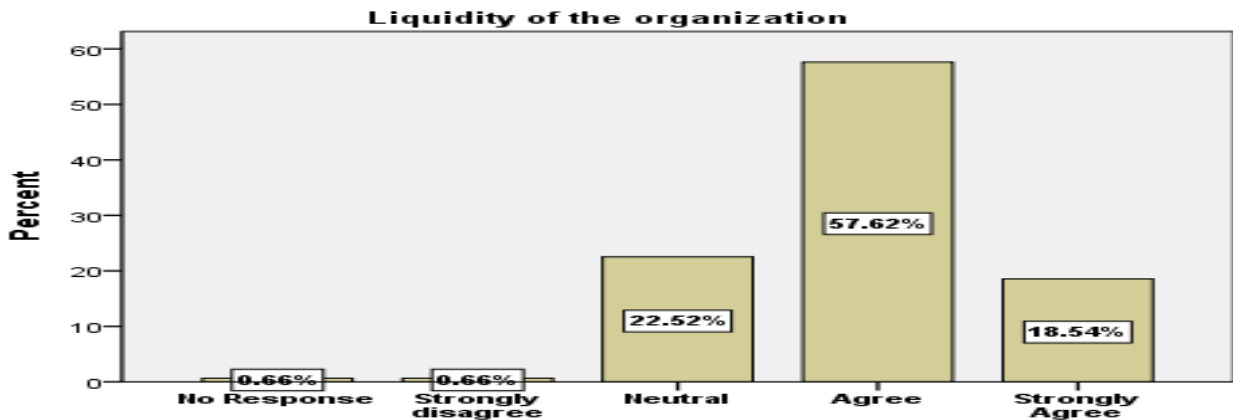
As one can see from figure 8 above, 17.22% of the respondents strongly agreed that the road project of AACRA lack sufficient communication amongst the parties involved in the projects.

64.24% agreed on the issue. Besides, 17.88 % of them remained neutral, 0.66% gave no response.

As (Chuan, 2006) argued that poor project success may necessarily be due to the incompetence of parties i.e. clients, contractors, finance source, team leaders etc. before, during and after the project.

According to the research findings above and as (Chuan, 2006), we can understand that lack of communication between road projects parties is one of the success factors under the variable organizational culture.

Figure 9: liquidity of the organization.

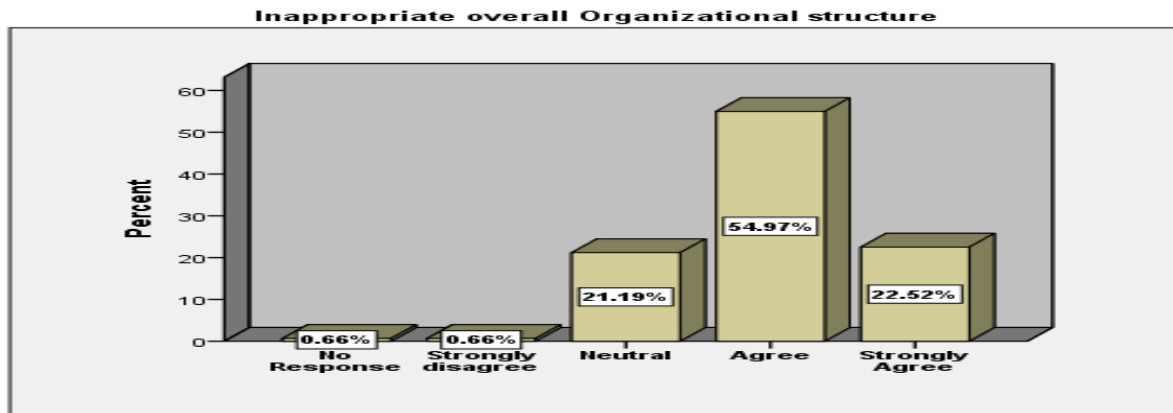


Source: Own Survey Data, (2021)

As one can see from figure 9 above, the respondents were asked if the liquidity of the organization is the success factor for road projects in AACRA or not, 57.62% agreed, 18.54% strongly agreed; 22.52 % of the respondents remained neutral. On the other end, 0.66% strongly disagreed and 0.66% gave no response.

So that, from the information obtained, one can conclude that liquidity of the organization is one of the success factors of road projects in AACRA.

Figure 10: Inappropriate overall organizational structure.



Source: Own Survey Data, (2021)

Figure 10 above depicts if inappropriate overall organizational structure is the success factor of road projects in AACRA or not. Based on the result obtained, 54.97 % of the respondents' rates agree, 22.52% of the respondents strongly agreed that inappropriate overall organizational structure is the success factor for road projects. On the other hand, 21.19% of the respondents remained neutral. 0.66% of the respondents strongly disagree and the rest 0.66 percent of them no response, Therefore, based on the findings above, one can conclude that inappropriate organizational structure is one of the success factors of road projects in ACCRA.

4.1.2.4. Technical Skill

Table 9 Project manager's capability and experience, Material selection, Acceptance of new technology, Ability to meet project deadline, and Lack of Quality assurance /control.

Project managers capability and experience		
Alternatives	Frequency	Percent
No Response	1	.7
Strongly disagree	1	.7
Disagree	1	.7
Neutral	14	9.3
Agree	83	55.0
Strongly Agree	51	33.8
Total	151	100.0
Material selection		
Alternatives	Frequency	Percent
No Response	1	.7
Strongly disagree	1	.7
Disagree	21	13.9

Neutral	91	60.3
Agree	37	24.5
Strongly Agree	1	.7
Total	151	100
Acceptance of new technology		
Alternatives	Frequency	Percent
No Response	1	.7
Strongly disagree	13	8.6
Disagree	57	37.7
Neutral	36	23.8
Agree	38	25.2
Strongly Agree	6	4.0
Total	151	100
Ability to meet project deadline		
Alternatives	Frequency	Percent
No Response	1	.7
Strongly disagree	2	1.3
Disagree	14	9.3
Neutral	109	72.2
Agree	25	16.6
Strongly Agree	1	.7
Total	151	100
Lack of Quality Assurance /control/		
Alternatives	Frequency	Percent
No Response	1	.7
Strongly disagree	6	4.0
Disagree	23	15.2
Neutral	109	72.2
Agree	12	7.9
Strongly Agree	1	.7
Total	151	100

Source: Own Survey Data, (2021)

Under the variable technical skill there were sub-variables as the project manager's capability and experience, material selection, acceptance of new technology, ability to meet project deadline, and lack of Quality assurance /control. As we can see from the study output in table 9 above, the respondents were requested if the project manager's capability and experience affects

the success of road projects in AACRA or not. The information in the table showed that 55.0% agreed, 33.8 % of the respondents strongly agreed. Besides, 9.3% remained neutral and 0.7% disagreed, 0.7% % of the respondents strongly disagreed and gave no response.

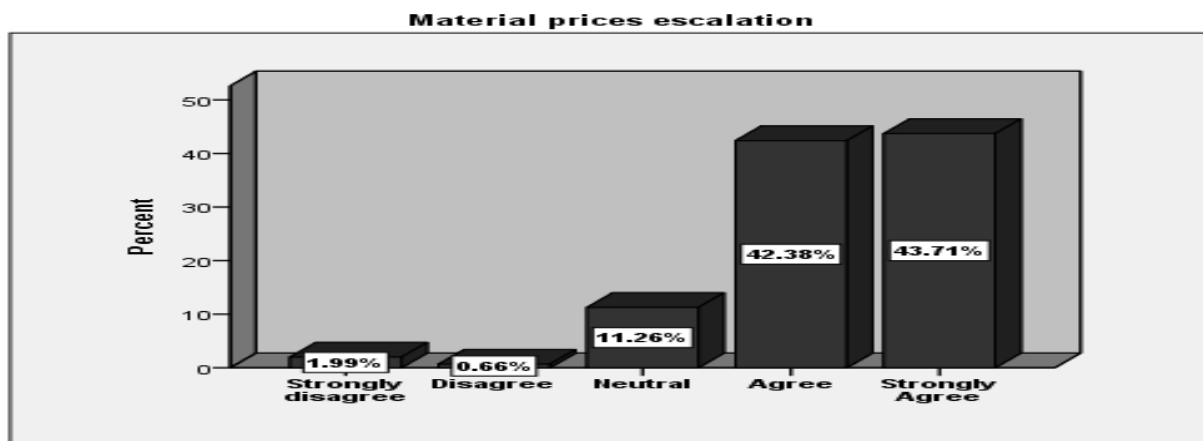
Under the sub variable of technical skill, i.e. Material selection, 0.7% of the respondents strongly agreed, 24.5% agreed on the issue. The greatest number of respondents' i.e. 60.3% of the respondents remained neutral. 13.9% of the respondents disagreed, 0.7% strongly disagreed and the rest 0.7% gave no responses. Regarding the acceptance of new technology 4.0% strongly agree, 25.2% agree, 23.8% neutral, 37.7% disagree, 8.6% strongly disagree and 0.7% gave no response.

On the other hand, ability to meet project deadline was taken as success factor because, 0.7% strongly agreed, 16.6% agreed. 72.2% of the respondents remained neutral. 9.3% disagreed, 1.3% strongly disagreed and the rest 0.7% gave no response. Regarding the lack of quality assurance /control/, 0.7% of the respondents strongly agreed, 7.9% agreed, 72.2% neutral, 15.2% disagreed, 4.0% strongly disagreed, and 0.7% gave no response.

Based on the finding above the project manager's capability and experience, material selection, acceptance of new technology, ability to meet project deadline, and lack of Quality assurance /control can be the success factor of road projects in AACRA.

4.1.2.5. Cost

Figure 11: Material prices Escalation

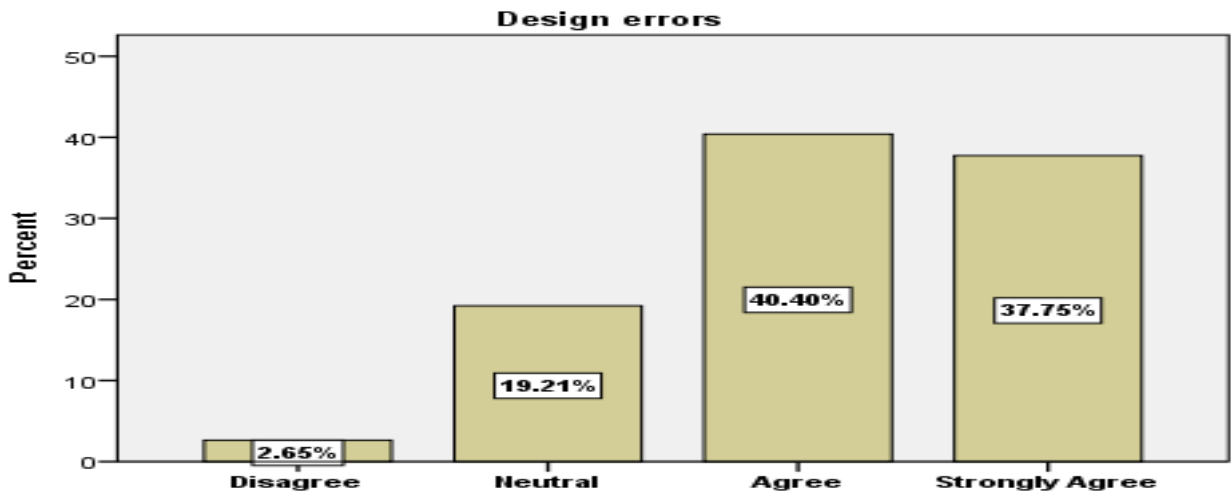


Source: Own Survey Data, (2021)

As one can see from figure 11 above, 43.71% of the respondents strongly agreed, 42.38% agreed that material escalation is one of the influenced segments of road projects in AACRA. 11.26% remained neutral. 0.66% disagreed and the rest 1.99% of the respondents strongly disagreed.

Based on the study findings one can deduce that material escalation is one factor of road projects in AACRA.

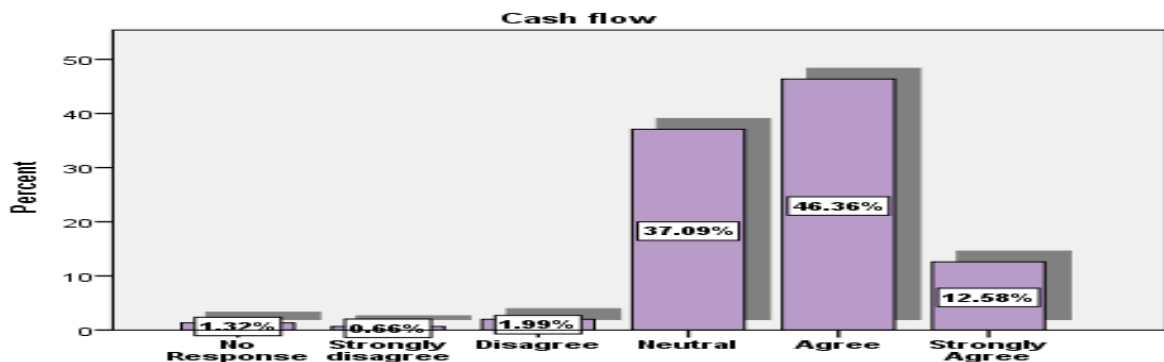
Figure 12: Design errors.



Source: Own Survey Data, (2021)

According to figure 12 above, for the statement “The design errors of road projects of AACRA would have been the factor for the success of road projects or not, 2.65% disagree, 19.24% remained neutral. On the other end, 37.75 % of the respondents strongly agreed and 40.40% agreed that the design error gaps are one of the success factors of road projects at AACRA.

Figure 13: Cash flow.

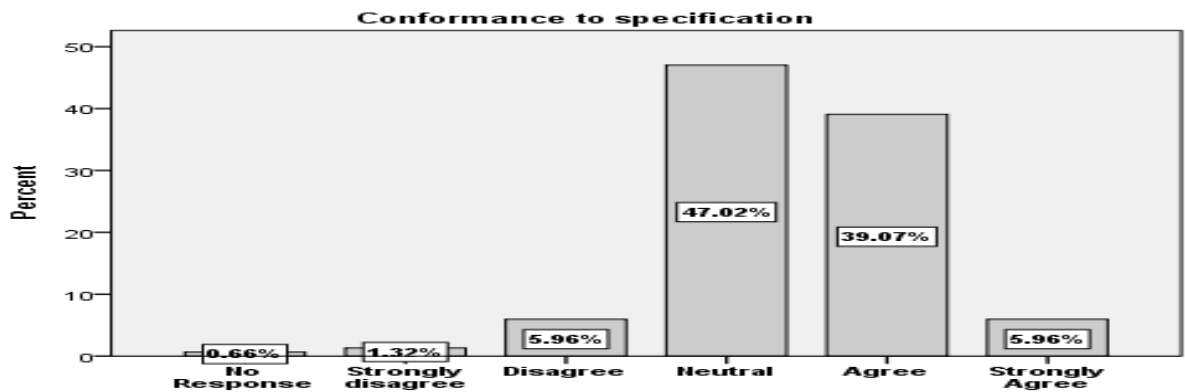


Source: Own Survey Data, (2021)

According to the figure above, and if the cash flow is the factor of project success in AACRA or not, 12.58% of the respondents strongly agreed, 46.3% of the respondents agreed that cash flow is one of the factor. 37.09% of them remained neutral and the rest 1.99% and 0.66 % of them were disagreed and strongly disagreed; the remained 1.32% gave no response.

So, what does the above study result implies? It could imply that inappropriate or appropriate cash flow could affect road projects in AACRA.

Figure 14: Conformance to Specification



Source: Own Survey Data, (2021)

For the idea “conformance to specification”, the research illustrated that 39.07 % of the respondents agreed and 5.96 % strongly agreed that this issue was the influenced factor for road project success. Whereas, 47.02% of them remained neutral. 5.96 % disagree, 1.32 % strongly agreed and 0.66% gave no response.

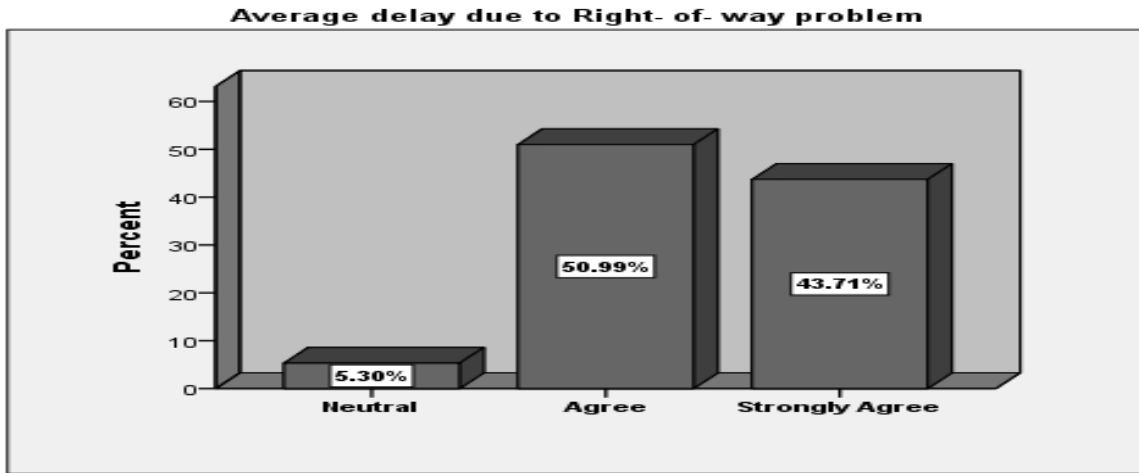
From the above result, when we see from the perspective of the ones who remained neutral that is 47.02% of the respondents conformance to specification might not influence project success when compared to the previous factors.

4.1.2.6. Time

Under the dependent variable time; average delay due to Right- of- way problem, Percentage of orders delivered late, average delay in claim approval, average delay in regular payments, frequent design change, average delay because of materials shortage and change in scope of the

project /variation order were discussed in the questionnaire. The responses were presented one by one in separate graphs as a logical manner.

Figure 15: Average delay due to right of way problem.

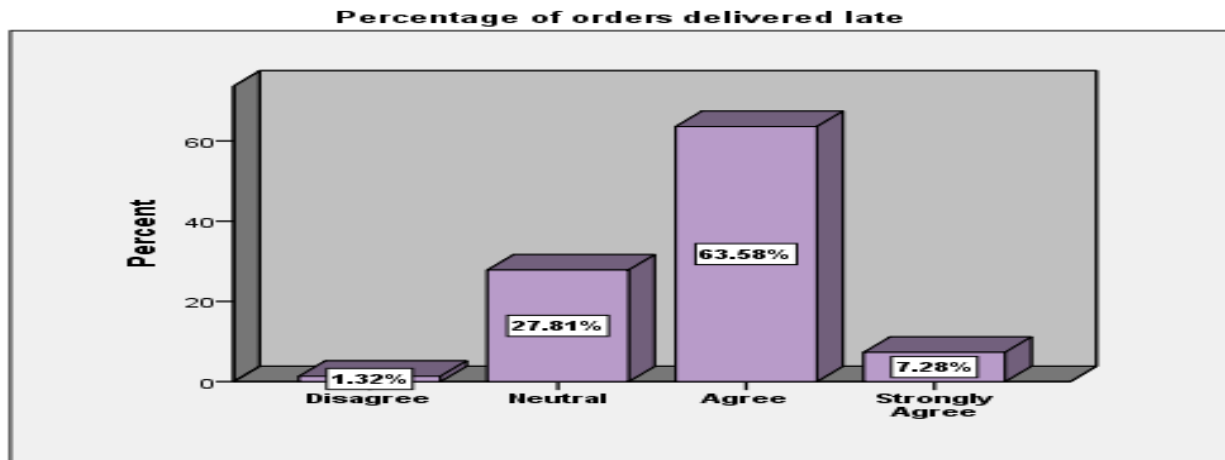


Source: Own Survey Data, (2021)

According to figure 15 above, respondents were asked if the delay due to right of way problem is success factor of road projects in their organization or not. 43.71% of the respondents strongly agree, 50.99% agreed and 5.30 % remained neutral.

From the response one can conclude that right of way delay is one of the influenced factors of road projects in AACRA.

Figure 16: percentage of orders delivered late.

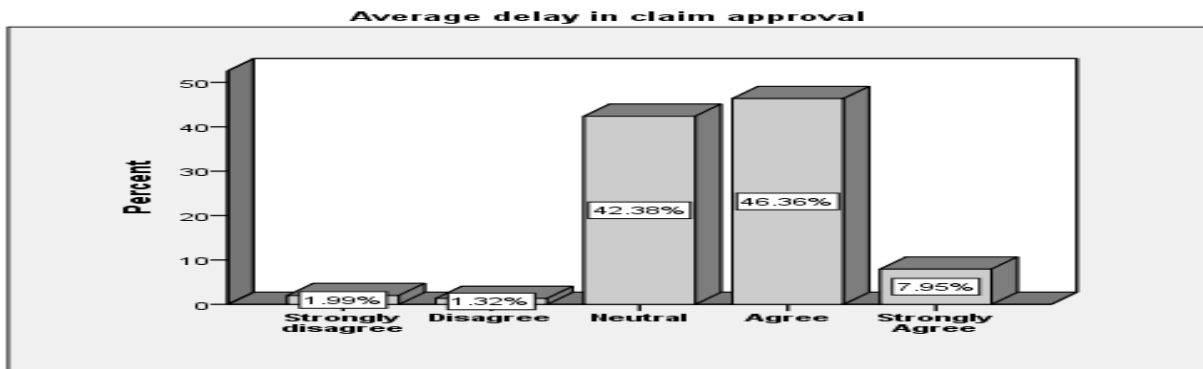


Source: Own Survey Data, (2021)

As we can see from the above table, 70.86% of the respondents strongly agree and agreed that percentage of orders delivered date is one of the greatest factors of success of projects in terms of time. The rest 29.13% remained neutral and disagreed.

From this part of the study findings one can deduce that percentage of orders delivered date can affect the success of road projects if one failed to achieve the expected delivering date.

Figure 17: Average delay in claim approval.

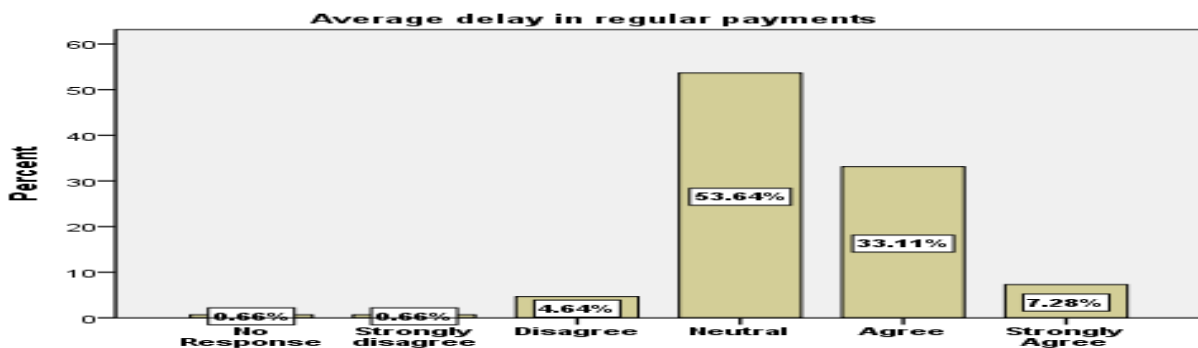


Source: Own Survey Data, (2021)

On figure 17 above, about the road project' average delay in claim approval, 21.26% of the respondents strongly agreed, 46.36% agreed. The other big number of respondents i.e. 42.38% remained neutral, 1.32% and 1.99% of the respondents disagreed and strongly disagreed respectively.

Based on the information obtained from the above table, it is clear that average delay in claim approval is seen in road project AACRA.

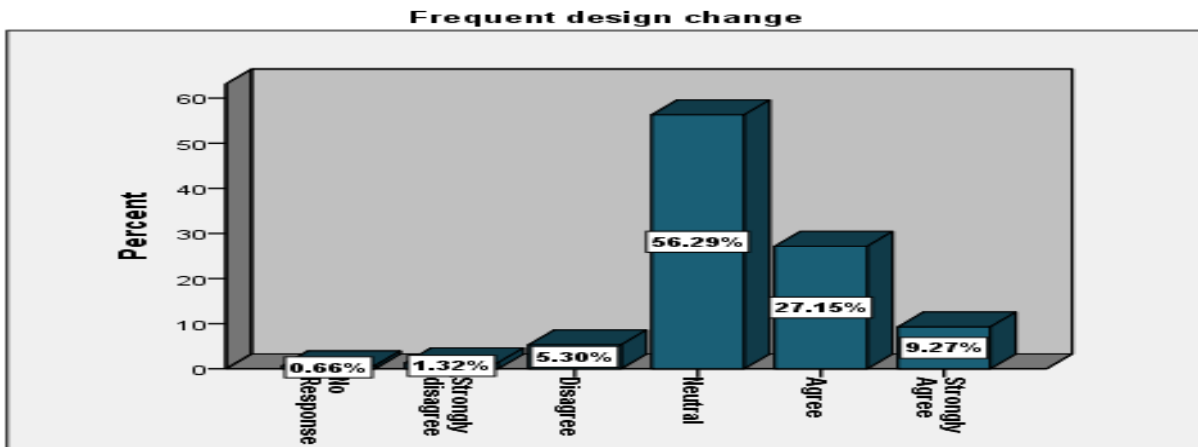
Figure 18: Average delay in regular payments.



Source: Own Survey Data, (2021)

As figure 18 above shows, 7.28% strongly agree, and 33.11% of the respondents agreed that the average delays in regular payments are one of the factors for project success. 53.64 % remained neutral on the issue. From the response above one can understand that average delay in regular payment is observed in road project in AACRA.

Figure 19: Frequent design change.

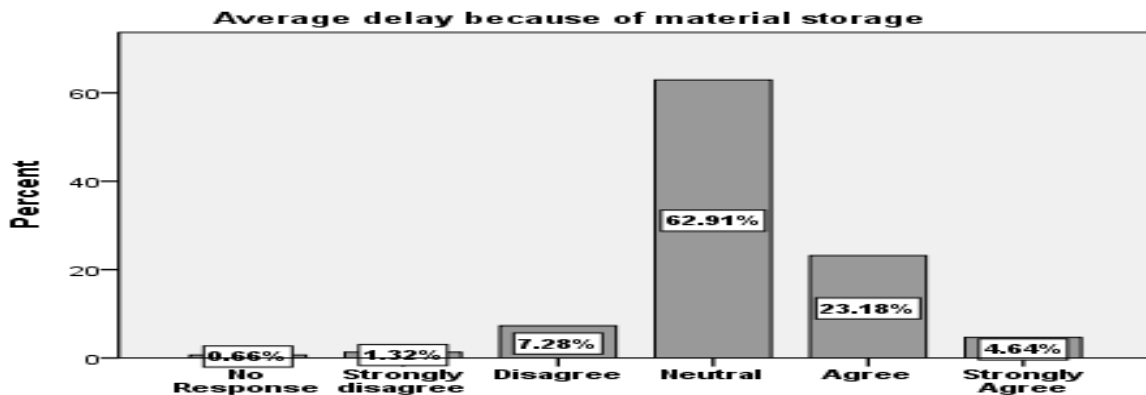


Source: Own Survey Data, (2021)

In figure 19 above, the respondents were asked if frequent design change would be the factor for the success of road projects in AACRA or not. 9.27% strongly agree, 27.15% agreed on the issue. 56.29% remained neutral.

From the data obtained it is understood that frequent design change is not frequent in road projects in AACRA.

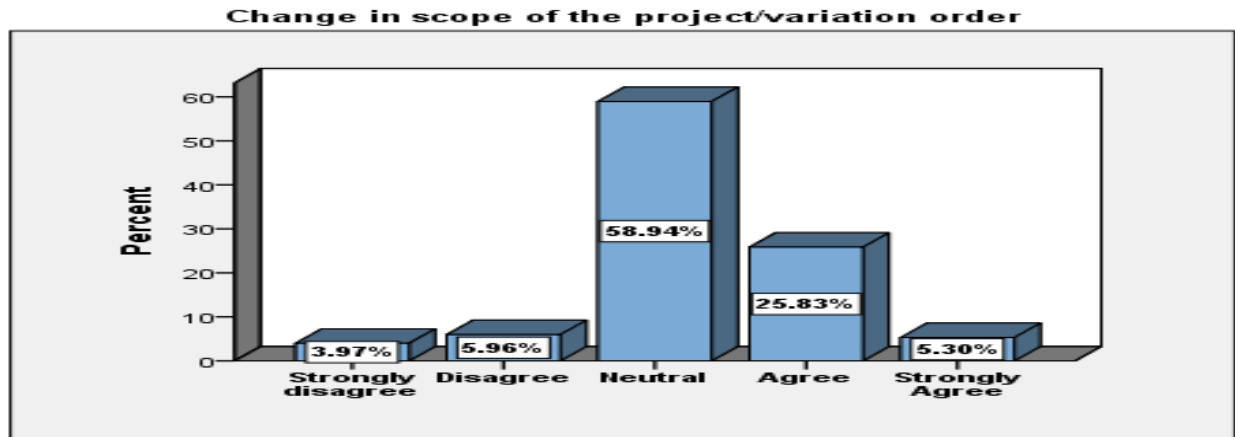
Figure 20: Average Delay because of Material Storage.



Source: Own Survey Data, (2021)

As one can see from figure 20, from the respondents participated in the study, 4.64% of the respondents strongly agreed that the average delay because of material storage is one of the success factor.,23.18 % agreed. On the contrary, 62.91% remained neutral that they don't know or not sure that average delay because of material storage is observed or not.

Figure 21: Change in scope of the project /variation order.



Source: Own Survey Data, (2021)

For the statement “if change in scope of the project /variation order is success factor or not” and as shown in figure 21 above, 5.30% strongly agreed, 25.83% agreed. Whereas, 58.99% remained neutral. This implies again that change in a scope of the project/variation order is not taken as a success factor or they don't recognize it as a success factor.

4.1.2.7. Quality

Table 10 Unavailability of personals with high experience and qualification, Conformance to specification, Quality of raw materials and Quality of equipment's in project.

Unavailability of personals with high experience and qualification		
Alternatives	Frequen,cy	Percent
Strongly disagree	1	.7
Disagree	3	2.0
Neutral	51	33.8
Agree	60	39.7
Strongly Agree	36	23.8
Total	151	100.0
Conformance to specification		
Alternatives	Frequency	Percent
Strongly disagree	1	.7

Disagree	6	4.0
Neutral	53	35.1
Agree	82	54.3
Strongly Agree	9	6.0
Total	151	100.0
Quality of raw materials		
Alternatives	Frequency	Percent
Strongly disagree	1	0.7
Disagree	1	0.7
Neutral	45	29.8
Agree	85	56.3
Strongly Agree	19	12.6
Total	151	100.0
Quality of equipment's in project		
Alternatives	Frequency	Percent
Disagree	2	1.3
Neutral	63	41.7
Agree	73	48.3
Strongly Agree	13	8.6
Total	151	100.0

Source: Own Survey Data, (2021)

From the table above, respondents were asked if unavailability of personals with high experience and qualification, conformance to specification, quality of raw materials and quality of equipment's in project has impact on road projects in AACRA or not. Unavailability of personals with high experience and qualification is taken as a success factor by 23.8% who strongly agreed, and 39.7% who agreed. 33.8% remained neutral.

On the other hand, the quality of conformance to specification was taken as a factor by 6.0% who strongly agreed, and 54.3% who agreed, 35.1% remained neutral on this part.

As displayed on the above table the quality of raw materials was taken as a success factor by 12.6% of the respondents who strongly agreed, 56.3% who agreed, 29.8% of them remained neutral. The quality of equipment's in project was taken as a success factor by 8.6 % of the respondents who strongly agreed and by 48.3% who agreed. 41.7% of the respondents remained neutral.

4.2. Correlation Analysis

The sample correlation coefficient, denoted r , ranges between -1 and +1 and shows the direction and strength of the association between the two variables. (Deribsa, 2018). The reason why correlation analysis conducted was to establish whether there was any relationship between the study variables. With this aim, the output of SPSS showed, as Pearson correlation, the first column shows the correlation of the variable with itself that was 1, that was a perfect positive correlation. In the next column, we can see the association between the independent and dependent variables. The relationship between the independent and dependent variables had positive relationship, strong correlation.

The following result of the correlation analysis shows that an increase in the independent variables could affect the success of road projects in AACRA positively. For example when availability of capital goes positive, project cost will minimize by 0.874, project time by 0.774 and quality will improve by 0.664.

Table 11 Correlation Analysis

Correlations		Avalability_capital	Management skill	Org_culture	Technical Skill	Cost	Time	Quality
Availability of capital	Pearson Correlation	1	.674**	.515**	.763**	.874**	.774**	.664**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	151	151	151	151	151	151	151
Management skill	Pearson Correlation	.574**	1	.694**	.654**	.754**	.554**	.654**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	151	151	151	151	151	151	151

Org_culture	Pearson Correlation	.715**	.594**	1	.761**	.654**	.534**	.415**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	151	151	151	151	151	151	151
Technical Skill	Pearson Correlation	.563**	.624**	.551**	1	.561**	.415**	.621**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	151	151	151	151	151	151	151
Cost	Pearson Correlation	.553**	.524**	.487**	.647**	1	.518**	.814**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	151	151	151	151	151	151	151
Time	Pearson Correlation	.714**	.578**	.649**	.684**	.734**	1	.544**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	151	151	151	151	151	151	151
Quality	Pearson Correlation	.614**	.871**	.786**	.698**	.574**	.478**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	151	151	151	151	151	151	151

Source: Own Survey Data (2021)

4.3. Presentation and Analysis of Qualitative Data

The three research questions answered through seven open-ended interview guidelines used to collect the data from the study participants. The interview questions also aligned with the research questions.

The interview included four main themes (a) key success factors that affect road projects in ACCRA, (b) the impact of capital, leadership style, technical skill, and organizational culture on road projects performance (c) Popular reasons for road projects delay at AACRA, and, (d) the expected responsibility of stakeholders on road projects. These themes appeared relevant and supported by the body of literature. For the analysis, respondents are represented as R001 to R004.

Theme 1. Key success factors that affect road projects in ACCRA

The participants of the interview believed there are many internal and external factors for road projects delay in AACRA. And all of them believed that timely completion of roads is very important for other investments in the city. Among the interview participants, R001 believed that unplanned budgeting, design errors or modification, consultants' skill and top management skill and support are among the factors of road projects delay in AACRA.

Respondent R002 stressed that right of way issue which is highly related with management skill in different levels of management is one of the main causes of road project success.

Management is a process of decision making, where managers use their skills in decision making through communication, influence and guide others towards achieving the objectives (Atchison and Hill, 1978). Similarly, R003 said management skill can make employees develop trust and help to achieve better. But, the in some projects in AACRA the managers and the consultants skill is not in a position what the science says, unable to do that. R004 also support the idea of other respondents, and supplement that different sub city's inability to pay money for the rise timely is one of the factors. And all of the respondents agreed that poor management of projects in different levels, insufficient budget, frequent design change, inability to work cooperatively with different road project stakeholders are among the major causes.

Theme 2. The impact of Capital, Leadership style, Technical skill, and Organizational culture on road projects performance of AACRA

In this regard all the participants of the interview took capital, leadership style, technical skill and organizational culture as the main determinants of the success of road projects in AACRA. Respondent R001 mainly said that contractors' leadership style is the main factor comparing with the other factors. R002 added that management skill is the main gap and that in turn affects the success of employees. Furthermore, R003 added the example that in road projects across the sub cities, the ones that got better attention by the higher officials and led by efficient contractors completed successfully.

On this case, R004 strengthen the idea with examples. In road construction cases when managers in different levels gave more attention, and if the contractor is financially capable, they were completed on time, and as planned.

Summing up the findings from the interview in relation with the impact of capital, leadership style, technical skill, and organizational culture on road projects performance of AACRA, it has seen that management skill and technical skill affects the success of road projects than the others.

Theme 3. Popular reasons for road projects delay at AACRA

R001 reflected that AACRA supervisor and the contractor did not cooperate in the way the science says. Moreover, frequent design changes that causes extra cost can be the other reason. R002 added that lack of technical and financial capability of contractors is the major cause of the delay of road projects. R003 strengthen the idea of R001&R002 on the idea of contractors capability, and he added that the other cause of the road project delay is inability of Tele and Electric utility to cooperate. R004 strengthen the others idea and believes ethical problems in all stages of the construction in all levels of man power is one of the causes. Consultant-contractor cooperation, technical skill, right-of-way and the like could be the cause.

Theme. 4. The expected responsibility of stakeholders on road projects and possible solutions

According to the study interviewees, all the road project stakeholders in Addis should work cooperatively. So that, the first stage should be convince all the publics around the project area about the project. In this case, AACRA, as the main stakeholder of the road projects need to work closely with the public, infrastructure organizations, and consultants to meet the needs of the public. Moreover, collective problem solving, close follow up of projects till inception to the completion is very important for the success of road projects.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This thesis has examined the various types of factors which have a significant negative impact in the success of Addis Ababa city road authority. The main objective of this thesis was to identify the influence of the availability of capital, management skills, organizational culture and technical skills on project success in Addis Ababa city roads authority and to examine major factors affecting success of the project's in Addis Ababa city roads authority. Based on this research objective the following conclusions are awarded and recommendations forwarded.

5.2. Summary of Findings

To come up with the purpose of the study mixed-methods research with explanatory sequential /Quan-Qual/ design was preferred because the combination of quantitative and qualitative approaches provides a better understanding of the research problem than either approach alone. In addition, a possible combination of the methods provides more comprehensive view of the research area. Using mixed method research, the following basic findings were found.

- ▶ Unavailability of non-loan capital sources and loans, capacity to access funding for road projects, lack of financial management prudence, bureaucracies from the steps involved in funding payment, adequate communication on the utilization of fund were identified as the major problems that affect the success of road projects in AACRA under the independent variable capital. As management skill was taken as an independent variable, there were statements designed to check if management skill is one of the success factor of road projects in Addis or not. As the finding prevails Unavailability of professional construction management is one of the greatest factors of road projects under the variable management skill. Poor site management, poor problem solving skills and techniques, poor estimation of the project time, and slow discussion making by owners are the greatest factors recognized by more than 60% of the study respondents.
- ▶ Poor organization value, inability of the management to make the road project stakeholders understand the mission for the project, lack of communication between

parties, liquidity of the organization, and inappropriate overall organizational structure to takeover projects successfully are found the success factors.

- ▶ In road projects success in AACRA, project managers capability and experience, inability of choosing the right material, acceptance of new technology, ability to meet project deadline, and lack of quality assurance /control are amongst the success factors too.
- ▶ Collective problem solving, close follow up of projects till inception to the completion is very important for the success of road projects.
- ▶ Ethical problems in all stages of the construction in all levels of man power are one of the causes. Consultant-contractor cooperation, technical skill, right-of-way and the like could be the success factors of road projects in AACRA.
- ▶ Management skill and technical skill affects the success of road projects than the others.
- ▶ There is positive relationship between, capital, management skill, technical skill, organizational culture and the dependent variables cost, time and quality.

Thus, the Addis Ababa city road authority should consider scheduling different kinds of relevant packages of capacity to improve their managerial skill and technical skills to expertise

5.3. Conclusion

Taking into account the research questions, various data analysis techniques were used to reach on the results. The following major conclusions were discovered in the course of investigating the success factor of road projects in AACRA.

The study found that the four independent variables /factors/ i.e. capital availability, management skills, organizational culture and technical skills, availability of capital are found the greatest factor that influences the time, cost and quality of road projects in AACRA. Problems related to Availability of Capital which is Bureaucracies from the steps involved in funding payment, Lack of financial management prudence and an availability of capital sources and loans greatly affecting the success of Addis Ababa city road authority.

Managerial skill which are Poor estimation of the project time, Poor problem solving skills and techniques and slow discussion making by owners is a major problem for the construction industry especially affects the time and cost of the projects.

Organizational culture which are lack of communication between parties, Liquidity of the organization and Organization value, the mission for the project is a problem of construction industry and Technical skill related problems which are lack of quality assurance /control, Project managers capability and experience and Material selection is the factors that affecting road project based on main factors.

Poor management of projects in different levels, insufficient budget, frequent design change, inability to work cooperatively with different road project stakeholders are among the major success factors.

The correlation between dependent variables (cost, time and quality) and independent variables (availability of capital, technical skill, managerial skill and organizational culture) shows a strong correlation. That means a one step ahead in the independent variables would improve the situation of the dependent variables. Based on the study result and the correlation done, availability of capital, management skill, organizational culture and technical skills has a strong correlation for the cost, time and quality of a project.

5.4. Recommendations

Depending on the findings and the discussions the following recommendations are given.

1. As one can see from the results obtained, availability of capital has major positive correlation with success followed by managerial skill, technical skills and organizational culture to the success of road projects in AACRA. So that, construction project should work to minimize cost by planning the road projects 360 degree to accomplish successfully.
2. Highly qualified and experienced road contractors with a relevant experience and technical skills should be hired to implement road projects. This will enable AACRA to get value for their money, achieve on-time projects completion and save huge costs.
3. Contractors should ensure that they have enough capital base and proper cash flow to execute the works and obtain from the practice of diverting particular project funds to non-project activities to avoid being cash-strapped during the execution of the works.

4. Contractors should ensure that they have adequate experience for a required assignment, deploy competent project team and employ appropriate construction methods for the required assignment.
5. The construction projects should ensure proper planning and arrangement of the works and ensure effective site management and supervision of the works so as to keep watch on critical activities and try hard to complete projects within the specified time while meeting quality and cost requirements.
6. For better control over cost, time and quality contractors need to assign experienced employees and use of software (application) to plan, monitor and control. However, it was revealed that well-finance programmers, ground exploration, adequate allocation of budgets, complying with the contracts and continuous training and transfer of knowledge would help counter to these challenges.

5.5. Recommendations for Future Studies

This research was concentrated on the factors affecting the success of road projects in the case of Addis Ababa Roads Authority. For the future study, this researcher recommends other researchers to further study the role of stakeholders on the success of road projects to maintain the quality of roads, and the impact of road projects raw materials on the quality and cost of roads.

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APPENDICES

Appendix I: Questionnaire

Dear Sir/Madam

This questionnaire is prepared to solicit information from purposely selected participants. The information is required for the academic research entitled “Factors Affecting the Success of Projects in Addis Ababa City Road Authority” which is being conducted as partial fulfillment of MBA in project management by Mr.Henok Assefa at Saint Marry's university. The main objective of the research is to examine the main factors affecting success of road construction project and make recommendations based on the findings.

Your response, in this regard, is highly valuable and contributory to the outcome of the research. All feedback will be kept strictly confidential, and utilized for this academic research only.

GENERAL INSTRUCTIONS

1. Writing your name is not mandatory
2. Please kindly indicate your answer by putting this mark (√) in the boxes provided

Thank you for your time in advance!!

Section I: Demographic Data

1. Gender of the respondent-----

Male Female

2. Academic Backgrounds: -----

Diploma First Degree Master’s Degree and Above Other

3. State your role in the project you are working in currently/the position you have in AACRA/

Project managers Contract administrator project team leaders

Supervisors Engineers consultants contractors

5. Working experiences in Road Construction (Years):

1-4 4-8 8-12 Above 12

Section II: Main questions

Instruction: - For the close ended questions in table forms, Please use the following Key words to answer. And put this mark (√) on the corresponding tables/boxes.

S.A = Strongly Agree (5)

A = Agree (4)

N = Neutral (3)

D.A = Dis Agree (2)

S.D.A = Strongly Dis agree (1)

Part I: Measurement of the Independent Variables

Please kindly indicate the extent to which you agree or disagree with the following factors influencing success of projects on Addis Ababa city road authority

NO	Factors	S.A (5)	A (4)	N (3)	D.S (2)	S.D.A (1)
A	Capital					
1	Unavailability of non-loan capital sources and loans					
2	Capacity to access funding for road projects					
3	Lack of financial management prudence					
4	Bureaucracies from the steps involved in funding payment					
5	Adequate communication on the utilization of fund					
B	Management skill					
6	Poor site management					
7	Unavailability of professional construction management					
8	Poor problem solving skills and techniques					
9	Poor estimation of the project time					

10	Slow discussion making by owners					
C	Organizational culture					
11	Organization value, the mission for the project					
12	Lack of communication between parties					
13	Liquidity of the organization					
14	Inappropriate overall Organizational structure					
D	Technical skill					
15	Project managers capability and experience					
16	Material selection					
17	Acceptance of new technology					
18	Ability to meet project deadline					
19	Lack of Quality assurance /control					

Part II: Measurement of the Dependent Variable

<u>NO</u>	Factors	S.A	A	N	D.S	S.D.A
		(5)	(4)	(3)	(2)	(1)
A	Cost					
1	Material prices escalation					
2	Design errors					
3	Cash flow					
4	Conformance to specification					
B	Time					
5	Average delay due to Right- of- way problem					
6	Percentage of orders delivered late					
7	Average delay in claim approval					
8	Average delay in regular payments					
9	Frequent design change					
10	Average delay because					

	of materials shortage					
11	Change in scope of the project /variation order					
C	Quality					
12	Unavailability of personals with high experience and qualification					
13	Conformance to specification					
14	Quality of raw materials					
15	Quality of equipment's in project					

End of questionnaire

Thank you for your time taken in filling this questionnaire.

Appendix II: Interview Guide

Some Top Level Project managers will be interviewed to understand the phenomenon according to their expertise and knowledge. And the following could be the interview guide.

- 1- What are the factors that affect success of a road project according to your experience and observation?
- 2- Amongst the capital, management skill, organizational culture, which factor affects the road projects in AACRA more?
- 3- How technical skills affect project completion in road projects in AACRA?
- 4- What do you think are the main causes of road construction projects delay?
- 5- Do time, cost and quality affected by capital, management skill, organizational culture in road projects?
- 6- What could be the possible solutions to ensure successful project completion in AACRA?
- 7- What is the main stakeholder's responsibility in improving on road construction project AACRA?