THE CAPABILITY OF CONSTRUCTION FIRMS IN THE DELIVERY OF PROJECTS IN ANAMBRA STATE

BY

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CERTIFICATION

This is to certify that this project "The Capability of Construction Firms in the delivery of Projects in Anambra State" was carried out by Okekunle Rasaki Chris with Reg. No. 20154989938 of the Department of Project Management Technology in partial Fulfillment of the requirement for the award of Masters (M.S.C) in project management technology.

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DEDICATION

This project is dedicated to Almighty God his divine protection and guidance throughout the period of this work

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ABSTRACT

This work examined the capacity of construction firms in the delivery of construction projects in Anambra State. The objectives include to analyse the selected construction projects to determine their level of performance, to determine the level of correlation between the role of contractors and implementation of projects and analyse the factors that inhibit construction firms' role in the implementation of construction projects. Earned Value Analysis method was partly used to analyze the performance data of the selected construction projects which showed low performance due to high level of cost and time overrun. The contributory factors to the low performance were identified. Based on this, five-point Likert's scale questionnaire was designed and distributed to 111 respondents for assessment. The multiple regression analysis of the factors show that all the identified factors significantly affected the role and performance of the construction firms with poor economic situation posing the highest effect. Hence, the study recommends that Government policies should be formulated to create a conducive environment for construction firms to be active in their roles for improve success in the delivery of construction projects; Construction firms should apply the project management techniques; construction firms should ensure that qualified personnel are employed to handle the planning and implementation of construction projects, Honesty and transparency should be the watch word for construction firms in performing their construction activities when dealing with clients and; The NSE and other organized professional bodies in Nigeria should revoke the operating license of construction firms found violating the professional ethics and roles in managing projects. This will reduce the level of insincerity exhibited by most construction firms and improve expertise in the execution of construction projects by engaging qualified personnel with the requisite knowledge regarding project management techniques for proper planning and implementation of construction projects in Anambra State.

KEY WORDS: Government policies; Contractors, Construction firms; Delivery of Projects; honesty and transparency.

CHAPTER ONE

INTRODUCTION

1.1 Background Information

Projects do not succeed by chance. Rather, successful project implementation is a result of careful conceptualization, design and implementation, factoring in all the variables which may influence project success in a given locality. When construction projects are involved, their unique features must be taken into consideration in order to guarantee success. Such features include complexity, uncertainty, capital, and labor intensiveness (Schwalbe, 2007). The Nigerian construction project industry in particular is dotted with too many cases of failed, abandoned or uncompleted projects. These include both publicly-owned facilities and private projects. Project failure manifests as inability to deliver a project to time, cost and quality specifications, or inability to satisfy consumer expectations (Jorgensen, & Gaureau, 2006). Going by this definition, it may be observed that few projects in Nigeria go to completion on time, and few also utilize the amount initially budgeted for them.

More often than not, the projects drag on for years and in some instances, they become functionally obsolete on completion. This is because times are changing fast, and new innovations driving the way things are done are being introduced every day. A typical example is the Ajaokuta Steels Project. The amount of money

invested so far runs into billions of naira yet, because it has dragged on for years, the project has no prospects of ensuring steel production at a competitive rate. This is because parts installed initially in the early stages of the project have become obsolete and cannot guarantee steel production at a competitive rate. The waste occasioned by this project is monumental, because the money could have been channeled into other needed priority projects like equipment of Universities, or maintenance of roads (Obiorah, 2012).

The failure of projects from a cost perspective is a worrisome trend in the construction industry in Nigeria. Whereas in many cases, project cost variation is inevitable because of inflation and other unforeseen events, more often than not, poor project conception and design by themselves make it impossible to make credible estimates of the costs of materials and of the project itself. This trend has become a handy excuse for corrupt contractors and administrators who resort to varying the cost of ongoing projects in order to make money from the situation. Sometimes, the ultimate cost of the project after all the variations done is several magnitudes higher than the projected cost at the start. This is wrong and points at the inability of governments and project owners to engage the services of professional project managers to oversee ongoing projects. In fact, technical competence in architecture, or building, civil engineering or management alone cannot qualify one as a professional project manager without the requisite training.

The inability to complete projects on schedule or to cost projections has sometimes led to total project abandonment. This has been encountered in road construction projects, where initial excavation and grading work can worsen the state of pre-existing roads, only for the project to be abandoned for one reason or the other.

This has created untold hardship in many rural and urban road construction projects, because such roads serve entire communities and could affect their economic fortunes. In other instances, public building projects of a crucial nature such as proposed hospital projects could drag on for years, even while the populace battle epidemics.

The design of a project is also very important, and is intimately linked to the conceptualization of its very idea. Poor design eliminates the possibility of deriving maximum value from the project, because functionality is lost. Poor design could lead to early dilapidation and short utility life. Sometimes, structural collapse may occur. This has happened in many residential building projects all over Nigeria, and has led to high number of casualties. In other countries such as China, cases of bridges collapsing in the course of construction have been recorded, leading to very high fatality rate (Choi, 2015). Recently in Nigeria, there has been a move to regulate the standards of building materials more stringently, as the poor qualities of such building materials have been adduced as a reason for the high rate of collapse, fires, dilapidation, etc (Ameh, 2014).

Therefore, this study is set to examine the capability of construction firms (contractors) in the implementation of construction projects in order to improve the level of project delivery in Anambra State.

1.2 Problem Statement

In recent times, the rate at which construction projects fail, or are abandoned, some even under construction, is retrogressive for a developing economy like Nigeria. The case of Anambra state has become more worrisome that hardly any week passes without cases of project collapse, failure or abandonment. Besides the very high numbers of abandoned projects defacing the landscape Anambra of recent, there is also a high rate of collapse of privately-owned building projects with the attendant fatalities.

In June, 2012, a building collapsed at Ifite, near Awka, claiming two fatalities with a number of other injured persons (Obiora, 2012). Very recently, in September 2014, another storey building collapsed at Adazi-Ani, killing one and injuring over 200 persons (Ameh, 2014). It is appalling that this can be happening when we have not been attacked by some natural disasters such as tsunamis and earthquakes, which test the strength of even the strongest buildings. The problems posed by failed projects are not limited to private buildings. In fact, some glaring cases of public buildings such as the Federal Secretariat Project, buttress this point. Project failure in Anambra State, is indeed alarming. Projects of moderate scale go on for a

long time and this has created skepticism in the citizenry about the sincerity of governments to complete any projects embarked upon on schedule. Sometimes, communities make projections about the likelihood of early completion or not, or even outright abandonment, judging solely by the reputation of the contractor handling the work. Even more worrisome is the prevalence of abandoned projects, mostly private properties.

Literature review and field study show that most of these projects suffer due contractor related problems in that most construction firms in Anambra state adopt wrong approach to effective planning and implementation of construction projects, application of crude techniques, insincerity on the part of contractors, engagement of unqualified personnel in the management of construction projects coupled with economic recession which have made project planning and implementation almost impossible considering the high rate of inflation and corruption and instability in the economic variables use in the planning and implementation of construction projects.

Hence, the study is set to examine these issues as they relate to contractors' role in ensuring the successful delivery of construction projects in the face of these constraints.

1.3 Objectives of the Study

The aim of this study is to examine the capability of construction firms in the delivery of projects in Anambra State. To achieve this aim, the following specific objectives were set:

i. To determine whether a significant correlation between the capabilities of contractors and successful delivery of project.
ii. To ascertain the level effect that project management techniques have on construction project delivery.
iii. To determine whether contractors' insincerity can significantly affect successful delivery of construction projects.
iv. To determine the extent to which qualified personnel can significantly affect the delivery of construction projects.
v. To ascertain whether economic situation can significantly affect the delivery of construction projects in Anambra for management decisions.

1.4 Research Questions

This research work, therefore puts forward the following questions in order to find solution for the research problem.

i. Is there any significant correlation between the capabilities of contractors and successful delivery of construction projects in Anambra State?

ii. What is the level effect that project management techniques have on construction project delivery?

iii. How can contractors' insincerity significantly affect successful delivery of construction projects?

iv. To what extent can qualified personnel significantly affect the delivery of construction projects?

v. To what extent can economic situation significantly affect the delivery of construction projects in Anambra?

1.5 Research Hypotheses

In order to answer the questions, the following hypotheses were formulated:

$H0_1$: There is no significant correlation between the capabilities of contractors and successful delivery of construction projects in Anambra State.

$H0_2$: Project management techniques have no significant effect on construction project delivery.

$H0_3$: Contractors' insincerity cannot significantly affect successful delivery of construction projects.

$H0_4$: Qualified personnel have no significant effect in the delivery of construction projects.

$H0_5$: Economic situation cannot significantly affect the delivery of construction projects in Anambra.

1.6 Justification of the Study

This thesis will be relevant to Nigeria construction firms. It is apt to note that some factors or combination of factors that may guarantee successful delivery of construction projects may not translate to guarantee success in Construction Projects.

In a nutshell, the research will help draw attention of Construction workers to the need to imbibe project management principles for successful implementation of Construction Projects. It will also help challenge curriculum and academic planning units of every university in Nigeria to appreciate the need to ensure that project management courses are incorporated in the training of Construction workers and by implication, all professionals. The research will also bring to the fore, the need for professionals to collaborate throughout the life cycle of any project. It will also be of interest to employers of Construction workers in the sense that additional emphasis will be placed on the non-technical capabilities of their Construction workers.

Finally, Project management professionals will also appreciate the need to see their profession from the broader view of adapting their expertise to every field of endeavour since all projects is dynamically affected by varying factors depending on the type of projects.

1.7 Scope of the Study

This study geographically covered construction firms (contractors) and their construction activities in Anambra. However, it is hoped that the data collected reflected majority of the situation in the country since Onitsha is the hub of many businesses and for this matter construction in Anambra state. Again most of the contractors in the metropolis have been executing projects in other parts of the country, therefore their information may be suitable for generalization. The area is also chosen because of its proximity and access to information to the researcher and due to the massive construction activities the metropolis is witnessing at the moment in both the public and the private sector. The study covers contractors in different category for building and civil engineering contractors operating in the town.

This research has its own limitation comparable to any other research in its conduct. These limitations will serve as pointers to future research endeavors. The limitations of this research are:

• The effect of sampling errors and measurement inadequacies can affect the collection of data, the analysis carried out and consequently the conclusions that was drawn.

• Respondents inability to release some construction information their firm consider as confidential.

• The field interviews were limited to only contractors based in Anambra state.

However, in order to achieve successful completion of this study, the researcher adopted good personal relation in collecting relevant data for the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Conceptual Review

A lot of scholars have conducted many studies over the years to determine which project management factors influences success. Fortune and White (2006) stated that there is a clear lack of consensus between researchers and authors regarding what factors affect project success. Critical success factors concept was developed by Daniel in 1961 about the how to manage information systems crises, and was further developed by Rockart in 1979 on his work by identifying the use of critical success factors to create competitive advantage (Barbara, 2010). Remus (2007) noted that the strength of critical success factors is through their identification and confirmation through working with senior management teams and other teams close to the work on how to involve and concentrate on key features for success.

However, the process of project implementation involving the successful development and introduction of projects in the organization presents an on-going challenge for managers. The project implementation process is complex, usually requiring stimulators' (contractors') attention to a wide variety of human, budgetary and the technical variables.

Unfortunately, the typical project manager often has responsibility for successful project outcome without sufficient power, budget or people to handle all of the elements essential for project success. In addition, projects are often initiated in the context of a turbulent unpredictable and dynamic environment. Consequently, the construction firms and contractors and their project managers would be well served by more information about those specific factors critical to their role in project success in Anambra State. They include;

2.1.1 Project Management Techniques

The type of technique applied to project planning and implementation determines the level of success achieve in the delivery of the project. Most times, construction firms (contractors) adopt crude techniques like Bar Chart or Gantt Chart which does not support modern principle of effective project management (Nwachukwu and Emoh, 2011). This is the reason behind the high level of project failure seen within Onitsha in Anambra State. Studies have revealed that most contractors lack proper knowledge of modern project management techniques and sometimes, the complex nature of these modern techniques pose great challenge to contractors (Echeme, 2017; Morris, 1999). To achieve greater success in project delivery, construction firms should adopt the techniques of Critical Path Method (CPM),

Programme/Project Evaluation and Review Technique (PERT), Expenditure Control Loop, etc.

2.1.2 Contractors' Insincerity

Honesty is a virtue that drives success. Unfortunately, most constructing firms or contractors appear to defraud their clients by unnecessarily inflating the contract sum thereby introducing untrustworthiness in the contract arrangement. However, Bekowei (2015) admonished contractors to exhibit sincerity in their dealing with clients as this will strengthen the trust and relationship between the parties in contract. That until this is done, projects will keep experiencing fatigue due to suspicion. Insincerity is a vice that does not impact positively on the successful implementation of projects.

2.1.3 Qualified Personnel

Human factor is the only factor of production that drives the other production factors. If the level of personnel involved in the planning and implementation is low, they cannot perform magic to achieve success. Meanwhile, Pinto and Prescot (1989) warned that most failure in project implementation are traceable to the competence or quality of the personnel involved in the project activities. This implies that project personnel should be well trained and retrained to be able to face the enormous challenges associated with project implementation, especially, construction projects.

2.1.4 Economic Situation

The level of economic recession in Nigeria have made project planning and implementation almost impossible considering the high rate of inflation, corruption and instability in the economic variables use in the planning and implementation of construction projects. Sadibo (2016) posited that the wrong economic policies that characterize Nigeria have inflicted poverty and misery in the well-being of the citizens. There is no doubt that unstable economic policies have made many contractors to fail in their bid to achieve project success due to unrealizable plan. Many contracting firms in Anambra have also enriched themselves at the expense of their unsuspecting clients both in public and private projects. Favourable economic environment supports project realization and vice versa.

However, it is expedient that construction firms or contractors should have an in-depth knowledge of projects and project management principle in order to perform well in the planning and implementation of projects.

2.1.5 Concept of Project and Project Management

By definition, a project can be considered to be a series of coordinated activities and tasks embarked upon by organizations, with clearly defined objectives, start date, duration, requirements for resources and also funding limits. A project is delivered to quality and time and cost specifications and in order to realize them, proper organization of resources is crucial (Nwankwo, 2006). This need for proper

organization of resources informs the concept of project management. Project organization therefore is referred to by Benjamin (2001) as the "overall design and structure of the body of entity that would undertake the task of project execution" By this definition there is no disparity between project organization design and organization design/instruction. Project management has been defined as "managing and directing time, materials and costs to complete a particular project in an orderly and economical manner, so as to meet established objectives in time, budgeted amount and to achieve technical results" (Ntamere, 1995). It can also be defined as planning, directing, organizing and managing of a company's resources for a relatively short-term objective.

Project management is believed to be justified as a means of avoiding the ills inherent in the construction and production sectors of the economy and for which reasons most projects fail and or abandoned (Nwachukwu & Emoh, 2011). Project management is concerned with "implementation of strategy". "Strategy" is an old word concerned with a plan of action geared towards achievement of a particular goal (Ghemawat, 2002). Modern project management, which is not the same as Strategic is a means to adapt for change and be a tool for strategy implementation. Project management is most crucial to the development of businesses and enterprises, in which it offers a platform for harnessing and integrating the various components of resources, labor, and communication towards project success. It

evolved from the need for management to stay informed about all aspects of an organization's activities and commitments given the complexity of the organizational structure. It is dynamic as it can change its composition to suit the need of the project wherever necessary.

2.1.6 Project Management in Practice

Project Management refers to a project management team consisting of a professional construction manager and other participants who will carry out the tasks of project planning, design and construction in an integrated manner. Contractual relationships among members of the team are intended to minimize adversarial relationships and contribute to greater response within the management group. Professional project Management is usually used when a project is very large or complex. The extent to which decision-making will be centralized or decentralized is crucial to the organization of the mega-project. Consequently, it is important to recognize the changing nature of the organizational structure as a project is carried out in various stages (Fellows et. al., 2001). According to Hendrickson (2008), effective management can be achieved by being able to:

- Well defined scope
- Extensive early planning

• Good leadership, management and first line supervision

• Positive client relationship with client involvement

• Proper project team chemistry

• Quick response to changes

• Engineering managers concerned with the total project, not just the engineering elements.

2.1.6.1 The Need for Planning

Planning can be applied to the whole of a construction project, from beginning to end, from inception and feasibility study to final commissioning and handing over the completed works to the client. It includes the planning of the design as well as the site construction works. One of the next difficult aspects of the early stage of planning is the need to co-ordinate the diversity of people and organizations that become involved, and the necessary activities and the processes (Neale, 1989). According to Griffith, Stephenson, and Watson, (2000), construction planning and control are now considered to be an essential requirement. The programme can act as an ideal communication medium to illustration logical thinking and the proposed sequencing of work. Parties involve in the project can view work sequences for evaluation, which may in turn provide the opportunity for new ideas and changes. However, while plans provide a documented path for completion of a

project, planning for planning sake is of no use without committed implementation and use.

2.1.7 Construction Industry in Nigeria

Typically, the construction industry of any country could be seen as having two main sets of features which make it unique from all others. The first one is the peculiarity of the construction industry which distinguishes it from other industries. The second being the peculiarities of each country's construction industry as defined by its socio-economic level, technological level, culture, institutional and legal frameworks. In Nigeria four main clients are distinguishable: the Government (being the major client), Real Estate Developers, Investors and Owner occupiers. Between 2000 and 2008 the government of Nigeria identified construction as a priority sector for foreign and private investment as part of its vision to promote the private sector as the engine of growth. According to World Bank (2003) cited in Kumaraswamy (2006), an approximate annual value of public procurement for goods, works and consultant services amount to US$600 million. This represents about 10% of the country's GDP. This amount forms part of the bulk of the expenditure of all government agencies, namely, the Ministries, the Assemblies, Departments, institutions and other agencies. Procurement of contracts must strictly follow the rules and regulation of the national procurement law as

stipulated in Procurement Act. An interview with the head of the Nigeria real estate developers association (GREDA) in 2007 revealed that they expect extra assistance from the government to support them in their quest to contribute to solving the housing problem in the country. In particular, they expected the government to have involved their association in its on-going affordable housing programme. Investors are usually financial companies who decide to invest excess capital in building construction. The social security and national insurance trust (SSNIT) is one of the leading investors in housing in Nigeria. Owner occupiers are individuals who decide to build their houses to live in. It has been the tradition of Nigerians to buy lands from the chiefs (the chiefs are the custodians and owners of land in Nigeria, not the government) and hire skilled workers to build their houses for them. This tradition has been entrenched mostly because successive governments failed to meet the housing expectations of individuals. Some of these owner occupiers also rent out extra rooms in their houses for income. Therefore, some of these owner occupiers are able to progress to the level of being private investors. The owner occupiers, thus, constitute the largest number of clients in Nigeria –almost every Nigerian is a potential owner occupier. They, usually, do not engage professional consultants (Gyadu-Asiedu, 2009).

2.1.8 Factors Affecting Project Implementation

According to Slevin and Pinto (1987), to successfully implement a project is usually difficult and complex. The project manager has to devote more time on human, financial, and technical variables as the key to the realization of project implementation. From available literature, it is apparent that the following determinants are capable of affecting project implementation in the states in review if not handled with care. This in-exhaustive list includes:

1. Escalation of project cost due to inflation
2. Difficulty in payment to contractors due to bureaucracy in government parastatals.
3. Contractors performing below standard and expectation.
4. Frequent changes in government.
5. Increase in the scope of the project.
6. Change in pre-contract consultants such as architects.
7. Ineffective project finance arrangement
8. Reorganization of the parastatals.
9. Change in the original design
10. Indiscriminate award of contracts without reference to funds available, location etc.
11. Projects and contracts determined on political considerations.

12. Poor planning or shoddy work by architects.

13. Specification of costly and imported materials

14. Insufficient working capital

These factors could be due to; inefficient management, inadequate planning and project complexity, change in technological know-how, business environment/geography or project, structure, finance/pricing, empowerment in organizations and restructuring, skilled and competent manpower and customers' specification.

2.1.9 Challenges of Nigerian Construction Industry

The Nigerian construction and housing industry plays an immeasurable role in the national developmental agenda and is an incontrovertible fact. For quite a long time, the advancement or otherwise of the construction and housing industry has largely been tied to the performance or competence of building contractors even though other professionals, notably architects, civil engineers, building technologists and quantity surveyors play complementary roles in the execution of projects or contracts. Contractors, quite often, bear the brunt of public criticisms of shoddy work, undue delay of projects and perceived diversion or misapplication of contract payments because they constitute the front liners in the award and execution of contracts. In simple language, contractors appear synonymous with

shoddy work. They are more regarded as a class of people who are only interested in maximizing profits and are associated with ostentatious lifestyles. Kumaraswamy (2006) noted, the performance of the construction industry in Nigeria is poor saddled with several problems ranging from contract administration, through complex and lengthy payment procedure, delayed payments to that of project execution. This is because sometimes this delays run into several months and thus, these employers find it difficult to continue paying their staff. The unskilled labours of the contractors form the largest group and the lack of guaranteed income, despite their commitment to work, shows an unpleasant side of the industry that is seen as one of the largest employer of labour. Because of the representation of construction workers in the working population of the country, such situation reflects on the socio-economic life of ordinary Nigerians. The reverse is also true. This could be likened to a period of freeze on government projects (Okeke, 2009). Like all other human institutions, contractors are not angels. They have bad lots among them and that is why it is important to separate the good from the bad ones and focus on the challenges and other issues affecting the development of the industry. The construction industry is indeed beset with a myriad of problems which are largely procedural in nature and can easily be resolved.

2.1.10 Critical Success Factors in Successful Project Implementation

A ten-factor model to successful project implementation has been developed by Slevin and Pinto (1987). These 10 factors form the basis for the diagnostic instrument for measuring relative strength of each factor of the project implementation profile (PIP):

i) Project Mission:

This factor was related to the underlying purpose for the implementation – its importance is clearly defined goals at the initial stages of a project. Are the goals clear, and can they succeed? Project mission has been found to refer to the condition where the goals of the project mission has been found and understood.

ii) Top Management Support:

Schultz and Slevin (1975) noted that management support for a project or any form of implementation has long been considered of great importance in distinguishing between their ultimate success or failure. Beck (1993) considers project management as not only dependent on top management for authority, direction and support, but ultimately the conduit for implementing top management plans, or goals for the organization.

iii) Project Schedule PIan:

It refers to the developing of a detailed plan of the required stages of the implementation process. Pinto and Slevin (1989), has drawn parallels between the

stages of the implementation process. In the PIP model, project schedule/plan refers to the degree to which time, schedule, milestones, manpower and equipment requirement are specified.

iv) Client Consultant:

The need for client consultant has been found to be increasingly important in attempting to successfully implement a project. For instance, Anyanwu (2003) found that the degree, to which clients are personally involved in the implementation process, will cause a great variation in their support for that project. Anyanwu (2003) viewed client consultant as the first stage of a programme to implement change. It is often required throughout the life cycle of the project Schultz, Pinto and Slevin (1987) warns that: it would be dangerous for the project manager to assume that since client consultant was satisfactory at an early stage, this activity could be ignored for the remainder of the project.

v) Personnel:

The view is that the most important assets in the building up and efficiency of any organization be it private or public depends to a large extent upon how effectively human resources (personnel) are utilized (Nwachukwu, 1988).

However, an unfortunate situation could develop, as Pinto and Slevin (1988) observed: in many situations, personnel for the project team are chosen with less-

than-full regard for the skills necessary to actively contribute to the success of implementation.

vi) Technical Tasks:

In the words of Pinto and Prescot (1989), 'Technical task refers to the necessity of not only having the necessary personnel for the implementation team, but ensuring that they possess the necessary technical skills and have adequate technology to perform their tasks'.

vii) Client Acceptance

Acceptance is a stage in project implementation that must be managed like any other factor. Locus (2009) as an implementation strategist, discusses the importance of user participation in the early stages of a system development as a way of improving the likelihood of later acceptance. Wilson (2009) opposed the use of intermediaries to act as liaison between the design, or implementation team and the projects potential user as a method to aid in client acceptance.

viii) Monitoring and Feedback:

This refers to the project control process by which at each stage of the project implementation, key personnel receive feedback on how the project is comparing to initial projection. Making allowances for adequate monitoring and feedback channels between the

i) Model builder and user.

ix) Communication:

The need for adequate communication channels is extremely important in creating an atmosphere conducive enough for successful project implementation. Communication as Pinto and Slevin (1988) opined is not only essential within the project team itself, but between the team and the rest of the organization as well as with the client. Communication to provide feedback and technical evaluation to areas outside the project within the host organization tends to be highly specialized for more effectively managed research projects.

x) Troubleshooting:

Regardless of how carefully the project was planned initially, it is impossible to foresee every problem arising from the organizational environment. Pinto and Slevin (1986), it was cautioned that each team should obtain technically competent people with the specific assignment to deal with problems when and wherever they arise, and to foresee, and possibly forestall potential trouble areas in the implementation process.

2.1.11 Project Success

Project success is among the few most frequently discussed project management concerns, yet it is the least agreed upon. Project managers tag some projects successful even though they have been poorly received by the intended clients and used well below capacity. Yet some projects exist which when first installed, were

perceived as failures but have come to be viewed as major successes with time. Dvir (2005) opined in a study that project success are usually measured in terms of meeting planning goals, customer benefitting and overall measure of success. Pinto and Slevin (1988) observed that project managers are constrained either by company policy or personal rule of thumb to resort to simplistic formula in rating project success or failure. Benjamin (1991) in his work also identifies four success factors to consider in designing an effective project management system, they include:

i. Definition of objectives

ii. Allocation of responsibility

iii. Co-ordination of activities

iv. Staffing the project

A study by Baker, Oguniana, and Xuan Lan, (1988) strongly confirms the importance of including client satisfaction within any measure of project success. After sampling six hundred and fifty (650) project managers, the researcher concluded that project success is something much more than simply meeting cost, schedules and performance specifications. In fact, client satisfaction with the formal result has a great deal to do with the perceived success or failure of the project. Findings from the above research support the following definitions of project success. "If the project meets the technical performance specifications and

or mission to be performed and if there is a high level of satisfaction concerning the project outcome among the people in the client organization and key users or clients of the project effort, the project is considered on the overall successful. Perception plays a strong role in this definition. Therefore, the definition is more appropriately termed 'perceived success of project'; Baker, Fisher, and Murphy hence concluded that 'in the long run what really matters is whether the parties associated with and affected by a project are satisfied. Good scheduled and cost performance means very little in the face of a poor performing end product'.

It may be shown that in many ways, measures of project and implementation success are parallel and complement each other. Consequently, Pinto and Slevin (1988) suggested that a synthesis of the measures of success in the fields has the potential to present a more accurate, comprehensive, and useful model of project success. The researcher's search of literature revealed two instruments for measuring project success in which internal and External (client) constructs are involving.

The internal factors include time, cost, performance which the project manager and his team exert daily control over and the external dealing with the client's satisfaction, use and effectiveness.

The value of this model is that it suggests an alternative to project assessment at a stage just after the project has been completed and commissioned and a large part

of the assessment of Success relates to the importance of the project upon the intended users, the clients.

2.1.12 Role of Project Management in Project Success

The management of construction projects requires knowledge of modern management as well as an understanding of the design and construction process. Construction projects have a specific set of objectives and constraints such as a required time frame for completion. While the relevant technology, institutional arrangements or processes will differ, the management of such projects has much in common with the management of similar types of projects in other specialty or technology domains. A project organization will generally be terminated when the mission is accomplished. Project Management is the art of directing and coordinating human and material resources throughout the life of a project by using modern management techniques to achieve predetermined objectives of scope, cost, time, and quality and participation satisfaction. By contrast, the general management of business and industrial corporations assumes a broader outlook with greater continuity of operations. Nevertheless, there are sufficient similarities as well as differences between the two so that modern management techniques developed for general management may be adapted for project management (Barrie, Donald and Paulson, 1984).

2.13 Measuring Project Performance

Performance measurement is defined as the process of evaluating performance relative to a defined goal. It provides a sense of where we are and, more importantly, where we are going (Rose, 1995). Rose further stated that measurement can guide steady advancement toward established goals and identify shortfalls or stagnation. Willis and Willis (1996) maintained the importance of measuring performance because it will indicate status and direction of a project.

It is widely accepted view that, at a minimum, performance measures of a project are based on time cost and quality (Barkley and Saylor, 1994). Atkinson (1999) noted that these three components of project performance as the 'iron triangle'. However, Kumaraswamy and Thorpe (1999) considered variety criteria in measuring a project. This includes meeting budget, schedule, the quality of workmanship, stakeholder's satisfaction, transfer of technology, and health and safety. Similarly, Chan and Tam (2000) noted that various other key components also used in measuring project performance such as health and safety, environmental performance, user expectation/satisfaction, actor's satisfaction and commercial value. Therefore, in this article, six variables have been identified for measuring project performance. They are cost, time, quality, clients' satisfaction, health and safety and functionality.

2.1.13.1 Cost performance

Cost is defined as the degree to which the general conditions promote the completion of a project within the estimated budget (Bubshait and Almohawis, 1994). Salter and Torbett (2003) indicated that cost variance was the most common technique used to measure design performance. It is not only confined to the tender sum, but the overall cost that a project incurs from inception to completion, which includes any costs arise from variations, modification during construction period and the cost arising from the legal claims, such as litigation and arbitration. It can be measured in terms of unit cost, percentage of net variation over final cost (Chan and Tam, 2000). Cost variance is a very important factor in measuring project performance because it indicates how much the project is over or under budget. Andi and Minato (2003) used cost variance to measure project performance caused by defective design in Japan's construction industry. Similarly, Georgy et al (2005) suggested the element of cost to measure the performance of engineering projects. Hence, in this article, cost variance is calculated by the variance between the actual cost and the budgeted cost of a project.

2.1.13.2 Time performance

It is very important for construction projects to be completed on time, as the clients, users, stakeholders and the general public usually looks at project success from the macro view where their first criterion for project success appeared to be

the completion time (Lim and Mohamed, 2000). Salter and Torbett (2003) and Odeh and Battaineh (2002) mentioned that time variance is one of the techniques for assessing project performance in construction projects. The element of time could indicate to project managers that the project was not running as smoothly as scheduled. Furthermore, Latham Report in 1994 suggested that ensuring timely delivery of projects is one of the important needs of clients of the construction industry. Construction time can be regarded as the elapsed period from the commencement of site works to the completion and handover of a building to the client. The construction time of a building is usually specified before the commencement of construction. Construction time can also be deduced from the client's brief or derived by the construction planner from available project information.

2.1.13.3 Quality performance

In the construction industry, quality is defined as the totality of features required by a product or services to satisfy a given need, or fitness for purpose (Parfitt and Sanvido, 1993). In other words, the emphasis of quality in construction industry is on the ability to conform to established requirements. Requirements are the established characteristics of a product, process or service as specified in the contractual agreement and a characteristic is any specification or property that defines the nature of those products, processes or services, which are determined

initially by the client. In order to achieve a completed project that meets the owner's quality expectations, all parties to a project must acquire an understanding of those expectations, incorporate them into the contract price and other contract documents to the extent possible, and commit in good faith to carry them out (Ganaway, 2006).

2.1.13.4 Clients' satisfaction

Satisfaction is regarded as a function of comparison between an individual's perception of an outcome and its expectation for that outcome (Locke, 1970). In the construction industry, client's satisfaction has remained an elusive and challenging issue for some considerable time. Dissatisfaction is widely experienced by clients of the construction sector and may be caused by many aspects but is largely attributable to overrunning project costs, delayed completion, inferior quality and incompetent service providers including contractors and consultants (Contract Journal, 2004). Research findings by BSRIA (2003) have suggested that it is five times more expensive to develop a new construction client than to maintain an existing one and companies could increase their profits by almost 100 per cent by retaining just 5 per cent more of their clients. Client's satisfaction is therefore a fundamental issue for construction participants who must constantly seek to improve their performance if they are to survive in the global marketplace. In the construction industry, the measurement of client's satisfaction

is often associated with performance and quality assessment in the context of products or services received by the client (Parasuraman et al, 1988; Soetanto and Proverbs, 2004). Usually the client's requirements are to get construction needs translated into a design that specifies characteristics, performance criteria and conformance to specifications, besides to get the facilities built within cost and time (Ahmed and Kangari, 1995).

2.1.13.5 Health and safety

Health and safety are defined as the degrees to which the general conditions promote the completion of a project without major accidents or injuries (Bubshait and Almohawis, 1994). The measurement of safety is mainly focused on the construction period as most accidents occur during this stage. Throughout the world, construction industry is known as one of the most hazardous activities. Thousands of people are killed and disabling injury annually in industrial accident. Construction workers worldwide have three times more chances of dying and two times of getting injured than any worker of other economic activity (Sousa and Teixeira, 2004). In Malaysia, Social Security Organization (SOCSO) reported out of the total of 73 858 industrial accidents recorded in 2003, 4654 were occurred in construction industries with 2 per cent or 95 cases resulting in deaths. There is no single reliable measure of health and safety performance. Traditionally, the safety performance is measured through injury statistic. The main purpose of measuring

health and safety performance is to provide information on the progress and current status of the strategies, processes and activities employed to control health and safety risks. Effective measurement not only provides information on what the levels are but also why they are at this level, so that corrective action can be taken.

2.1.13.6 Functionality

Chan (2001) considered 'functionality' as one success measure that is made in the post construction phase when the project is finished and delivered to service. Kometa et al (1995) opined that there would be no point in undertaking a project if it does not fulfil its intended function at the end. This indicator correlates with expectations of project participant and can best be measured by the degree of conformance to all technical performance specifications (Chan et al, 2002). Both financial and technical aspects implemented to technical specifications should be considered, achieving the fitness for purpose objective. Songer and Molenaar (1996) defined specification as workmanship guidelines provided to contractors by clients or clients' representatives at the commencement of project execution. The measure of technical specification is to the extent that the technical requirements specified can be achieved. In addition to that, Songer and Molenaar (1997) consider meeting specifications as one success criterion for design-and-build projects that is consistent with the measurement of technical performance, which is

to be measured in both the preconstruction and construction phases when the technical requirements are laid down.

2.1.14 Assessing Contractor Performance in Project Implementation

Contractor quality performance indicators have been divided into corporate level as adapted from manufacturing industries by Yasamis, Arditi and Mohammadi (2002) and project level indicators which consist of the most common tools used in project management (PMI,1996). Yasamis et al (2002), Arditi and Lee (2003, 2004), Ling and Chong (2005) and Lee and Arditi (2006) conducted their researches corroborating this division of corporate level quality performance and project level quality performance. Corporate level quality performances are processes an organization uses to achieve the following attributes of leadership; employee empowerment, partnership development information and analysis, continuous improvement, client focus. These attributes have been identified as critical success factor in achieving total client satisfaction for construction firms. By using these corporate-level processes it may be possible for owners to predict whether they will be satisfied with the quality performance of the construction firm. Project level quality performance is tools, techniques and processes an organization uses to achieve product quality and service quality attributes. Lists of product and service attributes with their definitions were found in literature (PMI,

1996; Yasamis et al, 2002; Arditi and Lee, 2003; Arditi and Lee 2004). Product quality attributes include: performance, reliability, conformance, durability, serviceability, aesthetics and perceived quality. The service quality attributes include: time, timeliness, completeness, courtesy, consistency, accessibility and convenience, accuracy and responsiveness. According toYasamis et al (2002), such a dissection of construction activity facilitates developing strategies to define, operationalize, measure and improve construction quality. Their study established a framework for the assessment of a contractor's quality performance from a list of contractor quality performance indicators that are derived from various quality-related practices of the contractor at the corporate and project level. Ling and Chong (2005) found that design and build contractors did not meet clients' expectations in service quality. Smallwood and Rossouw (2008) reported that majority of general contractors do not implement written documented quality management systems.

2.2 Theoretical Review

This study is anchored on system theory. A system is a combination of two or more interrelated variables, and each variable has an influence on the functioning of the whole system. Also, each variable is affected by at least one other variable and all possible subgroups of variables that influence the whole system. In addition, the subgroups in the system influence each other (Fredman & Neuman,

1999). However, a system will not function if not objectively supported by an external agency. Thus, well-organized and coordinated efforts to sustain structure and function of the system must exist (Laszlo and Kripper, 1998). Also no system can operate on its own or in isolation (Sang, 2015). The basic assumption of a system is that the whole is more than the sum of its parts and therefore helps to develop strategies to preserve the benefits of having the system (Sang, 2015). The advent of systems theory resulted to other vital concepts that relates to project management concept such as open and closed input-output analysis developed by Wassily Leontief in 1930s, boundary and homeostasis (Sang, 2015). The project affects and is affected by the various factors, like project management techniques, project managers and other stakeholders. Thus, project management context fits into a system as claimed by Ludwig von Bertalanffy, the founder of systems theory. Since the objective of any organization when initiating a project is to achieve successful outcomes, construction firm's capability has become a critical concern. Therefore, in this context, the systems theory applies to the study because the result of the project is intended to positively influence the socio-economic activities of Anambra State, and positive effect can only be felt if there is successful delivery of project outcome.

2.3 Empirical Review

The capabilities of construction firms in ensuring successful delivery of construction projects do not just occur naturally, they are responsible, in most cases, for the design, plan and implement construction projects. Hence, contractors must make effort in ensuring that their activities do not affect the realization of construction objectives. However, there are a number of factors during the construction process that when not managed properly can frustrate efforts of construction firms lead to schedule and cost overruns. Causes of schedule overruns are factors that lead to construction projects not being realized according to the plan, whereas causes of cost overruns are factors that lead to project budget overshoot and actual project cost exceeding the planned project cost.

According to Babalola (2015), there are 6 major causes that would frustrate contractors' activities in construction projects, the identified causes were ranked as follows: design error, poor site condition, delay in payment, financial incapability of client, financial incapability of contractor and non-availability of subcontractor and supplier. While Almond (2012) identified a total of 42 factors that affect construction firms and ranked the top ten causes as follows: Technical incompetence, poor organizational structure, and failures of the enterprise, lack of cost reports during construction stage, inadequate project preparation, planning and

implementation, delays in issuing information to the contractor during construction stage, lack of coordination at design phase, change in the scope of the project, government policies, Some tendering maneuvers by contractors, such as front-loading of rates, incomplete design at the time of tender, bad allocation of labour inside the site and delays in decisions making by government were ranked the top ten causes of cost overruns.

However, Okeleke (2016) revealed a total of 10 causes of cost and time overruns in construction projects due to contractor related activities as follows: incorrect planning, insincerity, wrong method of estimation, contract management, inflation of prices of materials, previous experience of contractor, Absence of construction cost data, Additional cost and Project financing. It is important to indicate that schedule and cost are intertwined, and as such, a serious challenge in one will definitely affect the other. This assertion is revealed in the work of Nelson (2012) which shows that, financial or cash flow difficulties, financial difficulties faced by contractors and public agencies, frequent change order and design, failure to pay for completed works, shortages of resources, considerable additional work, escalations of material prices, increases in the scope of work, delay in design work and late delivery of materials are the top ten causes of schedule overruns on construction projects. A study by Kold (2007) focuses on infrastructure

development concludes that: ‘consistent unfavourable economic environment is an example of the tragedy of the underdeveloped countries. It negatively contributes to construction project delivery as many contractors always capitalize on it to dwindle their clients’. He concludes that unless government create a fovourable economic environment, construction projects will keep suffering from cost and time overrun, most times occasioned by the contracting firms of contractors.

Explanations for cost and time overruns were sought through statistical analysis and theoretical considerations.

2.4 Literature Gap

A lot of scholars have made attempts to analyze the factors or success factors of construction projects, but without evaluating the extent to which construction firms’ role and the factors frustrating such roles from positively impacting on the success of construction projects. Also, the collective and individual effects of the frustrating factors to the capabilities of contractors in construction project delivery has not been ascertained. The study therefore intends to study and fill these existing gaps regarding construction project delivery in Onitsha, Anambra State, Nigeria.

2.4.1 Factor Identification

In summary, this study, having examined the contribution of many related works, identified non application of project management techniques by contractors in planning and implementing construction projects, insincerity of the contractors, level of personnel assigned construction project tasks and bad economic situation as influential to the roles of construction firms in smooth implementation of construction projects in Anambra State, Nigeria.

Table 2.2 Authors Associated with the Identified Factors on Capacities of Construction Firms in Construction Project Delivery

Symbols	Identified Construction Firms' Role Related Factors	Associated Authors
X_1	Application Project Management Techniques	Nwachukwu and Emoh (2011); Echeme (2017); Morris (1997).
X_2	Insincerity of Contractors	Bekowei (2015); Okeleke (2016).
X_3	Qualified Personnel	Pinto and Prescot (1989); Echeme (2017)
X_4	Economic Situation	Sadibo (2016); Almond (2012); Kold (2007)

These factors were analyzed in this study to help determine how these factors constrain the capabilities of construction firms in successfully delivering construction firms in Anambra.

CHAPTER THREE

METHODOLOGY

3.1 Research Design

The research design method adopted in this study is the survey technique designed to be observational as well as exploratory. The observational method is aimed at understudying the roles of construction firms in construction project activities and the challenges that frustrate the contractors from effectively performing their roles towards successful delivery of construction projects in Anambra State. This was done through the evaluation of their construction project performances in the past and their roles in the face of the identified factors. This observational design is useful because it helps the researcher in understanding roles of the construction firms and the factors having affected their performances in the past. It was based on this that questionnaires were designed to determine the effects of these challenging factors on the performance of construction firms. The questionnaire was designed using five point Likert scale. The Likert summated scale, according to Nworuh (2007) involves a list of statements, related to the nature of the factors and which respondents are required to indicate the degree of agreement or disagreement with each of the statement. A numerical score is assigned to each

degree of agreement or disagreement. The scores from all the statements are added up to obtain the total score of each respondent.

However, exploratory design was used to ascertain how correlation analysis and multiple regression analysis tool can be applied in analyzing the factors that frustrate contactors' roles in construction project delivery. The study also establishes the nature of relationship existing between the roles of construction firms and the level of performance of construction projects using quantitative tools and techniques.

3.2 Study Population and Sample Procedure

The total number of construction projects studied is seventeen (17) implemented by four (4) construction firms in Anambra. This was done purposively because of the availability of the necessary data needed for analysis to determine the performance of the projects. Table 3.1 show the 4 construction firms and the 17 construction projects surveyed by the researcher.

Table 3.1 List of the Construction Projects Surveyed

S/N	PROJECT LOCATION	PROJECT DESCRIPTION	CONSTRUCTION COMPANY	YEAR	STATUS
1	Ezenwa Street, Onitsha	Road Rehabilitation	14 Army Engineering, 302 Artillery, Onitsha	2014	Completed
2	Saneez Street, Onitsha	Road Rehabilitation	14 Army Engineering, 302 Artillery, Onitsha	2014	Work in progress
3	Nkpor/Obosi by pass, Nkpor	Road construction	IDC Construction Company	2016	Completed
4	Odume, Onitsha	Road construction	IDC Construction Company	2016	Completed

5	Bida Road	Road Rehabilitation		2014	Completed
6	Akpaka New GRA, Onitsha	Road construction		2016	Work in progress
7	3-3 by pass, 3-3 Onitsha Federal Housing	Road construction		2016	Completed
8	Francis Street	Road Rehabilitation	14 Army Engineering, 302 Artillery, Onitsha	2014	Completed
9	William Street	Road Rehabilitation	14 Army Engineering, 302 Artillery, Onitsha	2014	Completed
10	Omagba Phase 1 & 2	Road Rehabilitation	IDC Construction Company	2016	Completed
11	Nkpor Flyover, Nkpor-Onitsha	Bridge	CCC Construction Company	2016	Completed
12	Onitsha/Enugu Express Road, Bridgehead/Upper Iweka axis	Road Rehabilitation	CCC Construction Company	2016	Completed
14	GRA Park Road, Onitsha	Road construction		2016	Completed
15	Awada, Onitsha	Road/erosion control	Pachucs Construction	2016	Work in progress
16	5 star Hotel at Shoprite Onitsha	Hotel		2016	Under Construction
17	5 Pedestrian Crossing along Onitsha/Enugu Exptress Way(Onitsha Axis)	Bridge	CCC Construction and IDC Construction	2016	Completed

Source: Research Survey (2021)

On the other hand, the total number of participants in the construction projects studied is estimated to be one hundred and twenty (120) consisting of the construction firm owners/contractors (12), consultants (9), architects (31), engineers (35), and estate/project managers (33). This form the population of the study. Base on the finite size of the study population, the study adopted a consensus method and sampled all the participants aa the respondents for questionnaire assessment. This was also done base on judgmental sampling technique aimed at targeting the participants (respondents) in the construction project with direct knowledge of the capabilities and roles of construction firms

and the challenges that frustrates contractors from performing these roles effectively to ensure project success.

3.3 Method of Data Collection

The data used in this research are both primary and secondary data. The primary source is the questionnaire, while the secondary data were collected from various sources which include the construction project performance reports, extracts from the Anambra state Ministry of Works and Urban Development. Data were also obtained from project management textbooks, journals, and research projects, workshops/conferences and seminar presentations. To a large extent, these formed the major sources of most of the literature evidences used as the basis for the analysis carried out in this study.

3.3.1 The Questionnaire

The questionnaire design was made twice, first was the preliminary design and secondly, the main design.

3.3.1.1 Preliminary design

It was important for a pool of experts to contribute to the development of the research questions. To do this a brief write-up stating the research topic, the objectives of the research and target respondents were prepared. Respondents

drawn from relevant professionals in academic, private and public sectors were given the write-up and requested to answer a minimum of five relevant questions on each aspect of the objectives of the research. Their responses formed the basis for the designing of the main questionnaire.

3.3.1.2 Main Design

From the outcome of the preliminary survey, the main questionnaire for data collection was designed. The objective of the main questionnaire was to obtain experts opinion on the identified factors that affect the roles of contractors and are critical to the performance rate of construction project implementation. Thirty (30) relevant statements/questions which are based on Likert's five-point scale, were formulated such that respondents could indicate how strongly they agree or disagree with each of the statements in the questionnaire. The draft questionnaire was distributed to fifteen (15) respondents to detect and correct any defects and ambiguities before final administration.

3.3.1.3 The Likert Five-Point Scale

Likert summated scale involves a list of statements, related to the attitude of question for which respondents are required to indicate the degree of agreement or disagreement with each of the statement. A numerical score is assigned to each

degree of agreement or disagreement. The scores from all the statements are added up to obtain the total score of each respondent. For each statement, respondents were requested to select any one position from among a scale that has five categories as follows: Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), Strongly Agree (SA). Each category was assigned a numerical value, for example, Strongly Agree =5, Agree =4, Neutral =3, Disagree =2, Strongly Disagree=1.

3.3.1.4 Questionnaire Administration

The target respondents were categorized as shown in Table 3.1. The distribution of questionnaire was purely exclusive because the respondents are expected to be knowledgeable in the roles of construction firms and directly involved in the project activities of construction firms in the study area. Questionnaire allocation was based on judgmental sampling method, considered appropriate in view of the study constraints. The questionnaire allocation is shown below,

Table 3.2 Statistics of Questionnaires Administration

Respondent Group	**Questionnaire Distributed**
Construction firm owners/contractors,	12
Consultants,	9
Architects,	31

Engineers,	35
Estate/project managers	33
Total	**120**

3.4 Validation of the Research Instrument

To do validity test, the questionnaires was evaluated by the research supervisor and its administration in the area under study. The research instrument was also sent to research professionals outside the pressure audience, and the result also confirms the genuineness and authenticity of the questionnaire both in framing and content.

3.5 Reliability Test

The test-retest method was adopted after the instrument has been retrieved from the sample used for the preliminary study. To achieve this, the research instrument (questionnaire) was administered to ten (10) respondents from the respondent group for assessment. The responses were collected and after two weeks, the same instrument was also administered to the same respondent group. The two responses were collected and correlated. A correlation result of 0.891 show a high level of reliability of the research instrument for data collection.

3.6 Method of Data Analysis

Data collected from construction firms regarding the performance of their construction projects were evaluated using Earned Value Analysis (EVA) with the aim of determining the level of cost variations that occurred in the selected construction projects executed in Anambra State as it relates to cost and time specifications, since they are the main criteria for judging the success of projects. Akpan and Chizea (2013) agrees that EVA compares planned amount of work with what has actually completed, to determine if the cost, schedule and work accomplished are progressing in accordance with the plan.

Hence, Cost Variance (CV) = {BCWP-ACWP/BCWP}.....(3.1),

where; BCWS is budgeted cost of work scheduled or planned budget, BCWP is budgeted cost of work in place, i.e. earned value at the time of evaluation, ACWP is actual cost of work in place.

A zero cost variance would indicate that project cost is currently on budget, and on course but probably resources are not being applied to the project appropriately. That also is an indication of possible delay. Basically, a positive variance is desirable (under budget and ahead of schedule) and a negative variance is undesirable (over budget and behind schedule). However, Cost Performance Index (CPI) = BCWP/ACWP……(3.2)

Oberlender, (2000) added that a CPI of one (1.0) or more is favourable given that the earned value is more than the actual cost for the project as at the time of evaluation.

Correlation analysis was adopted in testing hypothesis one (H_{01}) while the Multiple Regression Analysis (MRA) technique was used to analyze the effect of the identified factor that frustrate contactors role for effective delivery of construction projects and to test the other hypotheses formulated at 5% level of significance.

3.6.1 Decision Rule for Testing Hypotheses

t - test

The null hypothesis (Ho) i.e. b = 0 is accepted at α level of significance and n-k-1 degree of freedom, if $t^*_{cal} < t_{1-\alpha}$, n-k-1 degree of freedom. Otherwise the null hypothesis (Ho) is rejected. $t_{1-\alpha}$; k, n-k-1 is the critical value obtainable from the standard t – distribution table, and α = the chosen level of significance, which for the purposes of this study is 0.5 or 5%.

Alternatively, the null hypothesis is accepted if the p-value is less than 0.05 the level of significance.

3.7 Definition of the Factors Used for the Analysis

The following symbols were used as acronyms for the identified factors that inhibit roles of construction firms in construction project delivery in Anambra State.

Table 3.3 Acronyms for the Factors that Constrain Contractors' Roles in the Delivery of Construction Projects

S/No.	Identified Factors	Symbol
1	Non application of project management techniques	X_1
2	Insincerity of the contractors	X_2
3	Level of personnel competence	X_3
4	Economic situation.	X_4

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Analysis of the Performance of Selected Construction Projects Executed by Five (5) Construction Firms in Anambra State

The construction project data collected were analyzed in the Tables 4.1 to 4.5 below. The cost specifications of the selected construction projects in Onitsha were shown and their level of cost variations and performance index determined using EVA model. This was done to determine the level of performance of these construction projects given the roles of the construction firms in Anambra.

Table 4.1 Analysis of Cost Performance of the Projects Executed by 14 Army Engineering, 302 Artillery, Onitsha, Anambra State

S/No.	Project Title	Contracting Firms	Budgeted Cost (N)	Actual Cost (N)	Cost Variation (N)	Cost Performance Index (CPI)	Project Status
1	Road Rehabilitation at Ezenwa Street, Onitsha	14 Army Engineering, 302 Artillery, Onitsha	107,129,001.72	131,070,199.17	23,941,119.4	0.82	Completed
2	Road Rehabilitation, Saneez Street, Onitsha	14 Army Engineering, 302 Artillery, Onitsha	484,381,009.72	391,134,289.00	93,246,720.7	1.24	Work in progress
3	Road Rehabilitation at Francis Street	14 Army Engineering, 302 Artillery, Onitsha	40,200,121.00	63,201,120.00	23,000,999	0.64	Completed
4	Road Rehabilitation at William Street	14 Army Engineering, 302 Artillery, Onitsha	398,070,499.00	501,104,277.00	103033778	0.79	Completed

Source: 14 Army Engineering, 302 Artillery, Onitsha (2021)

Table 4.1 show that projects S/No. 1, 3 and 4 did not perform well with respect to cost given that the earned value are less than the actual cost for the project as at the time of evaluation. Project S/No. 2 did well in that the CPI is more than 1.0 though project S/No. 2 is still ongoing. This implies that '14 Army Engineering' may not have played their role effectively in most of these projects, hence the projects suffer.

Table 4.2 Analysis of Cost Performance of the Projects Executed by IDC Construction Company, Anambra State

S/No.	Project Title	Contracting Firms	Budgeted Cost (N)	Actual Cost (N)	Cost Variation (N)	Cost Performance Index (CPI)	Project Status
1	Road Rehabilitation at Nkpor/Obosi by pass, Nkpor.	IDC Construction Company	729,010,398.90	461,111,218.0	267,899,180.9	1.58	Completed
2	Road Rehabilitation, at Odume, Obosi	IDC Construction Company	362,314,704.30	298,211,935.5	64,102,768.8	1.21	Completed
3	Road Rehabilitation at Bida Road	IDC Construction Company	665,549,486.75	472,191,060.0	618,330,380.7	1.41	Completed
4	Road Rehabilitation at Akpaka New GRA, Onitsha	IDC Construction Company	589,918,224.04	724,226,618.0	-134,308,394	0.81	Work in progress
5	Road Rehabilitation at Omagba Phase 1 & 2 Onitsha	IDC Construction Company	789,204,224.09	789,204,224.09	0	1.00	Completed
6	Road Rehabilitation at 3-3 by pass, 3-3 Onitsha Federal Housing Onitsha	IDC Construction Company	668,218,220.00	668,491,303	-273,083	1.00	Completed

Source: IDC Construction Company, Onitsha (2016)

The projects executed by IDC Construction company, appear to perform better than the 14 Army Engineering which delivered projects with CPI less than 1.0.

This means that IDC construction firm are more committed to their role in delivering successful projects to her clients. All the projects selected from IDC have their CPI more than 1.0 (favourable) given that the earned value is more than the actual cost for the project as at the time of evaluation.

Table 4.3 Analysis of Cost Performance of the Projects Executed by CCC Construction Company, Anambra State

S/No.	Project Title	Contracting Firms	Budgeted Cost (N)	Actual Cost (N)	Cost Variation (N)	Cost Performance Index (CPI)	Project Status
1	Bridge Construction at Nkpor Flyover, Nkpor.	CCC Construction Company	48,899,112.17	65,192,210.00	116,293,097.83	0.75	Completed
2	Road Rehabilitation, at Onitsha/Enugu Express Road, Bridgehead/Upper Iweka axis, Onitsha	CCC Construction Company	89,128,111.09	121,781,099.00	32,652,987.91	0.73	Completed
3	Road Rehabilitation at GRA Park Road, Onitsha	CCC Construction Company	558,218,198.00	695,202 000.00	136,983,802	0.80	Completed
4	Bridge Construction - 5 Pedestrian Crossing along Onitsha/Enugu Exptress Way (Onitsha Axis)	CCC Construction Company	489,308,996.17	322,211,104.90	167,097,891.2	1.52	Work in progress

Source: CCC Construction Company, Onitsha (2016)

Table 4.3 show that the construction executed by CCC construction firm performed poorly. This is of the value of CPI which are less than 1.0. it indicates unfavourable outcome given that the earned value is less than the actual cost for the project as at the time of evaluation. The bridge construction (pedestrian crossing) projects along Onitsha/Enugu Expressway indicate favourable result, but

it is still in progress. Evidences are that the project may experience fatigue, given the result of the other projects executed by the construction firm.

Table 4.4 Analysis of Cost Performance of the Projects Executed by Pachucs Construction Ltd, Anambra State

S/No.	Project Title	Contracting Firms	Budgeted Cost (N)	Actual Cost (N)	Cost Variation (N)	Cost Performance Index (CPI)	Project Status
1	Construction of 5 star Hotel at Shoprite, Onitsha	Pachucs Construction	62,700,000	69,945,000	7,245,000	0.90	Work in progress
2	Road construction and Erosion Control at Awada, Obosi	Pachucs Construction	201,500,000	255,623,048	54,123,048	0.79	Work in progress

Source: Pachucs Construction Ltd, Onitsha. (2016)

The two selected projects under construction by Pachucs Construction Ltd are not performing well given that their CPI are less than 1.0. This implies that the projects have already experienced cost overrun while they are still in progress. The CPI is not favourable given that the earned value is less than the actual cost for the project as at the time of evaluation. This poor performance may have been as a result of the firm not performing their roles as it relates successful delivery of construction projects in Onitsha, Anambra State.

Table 4.5 Analysis of Cost Performance of the Projects Executed by RCC, Anambra State.

S/No.	Project Title	Contracting Firms	Budgeted Cost (N)	Actual Cost (N)	Cost Variation (N)	Cost Performance Index (CPI)	Project Status
1	Construction of Onitsha/Enugu Express Road, Umunya Axis	RCC	1,917,228,668.17	2,556,117,009	638,888,341	0.75	Work in progress
2	Construction of Onitsha/Enugu Express Road, Awka Axis	RCC	2,228,171,009.78	2,708.212,629.09	480,041,620	0.82	Work in progress

Source: RCC Ltd, Anambra. (2016)

Also the two selected projects under construction by RCC Ltd failed to meet the favourable CPI 1.0. This implies that the projects have already experienced cost overrun while still in progress. The CPI is not favourable given that the earned value is less than the actual cost for the project as at the time of evaluation.

From Table 4.1 to 4.5, the researcher finds out only IDC Ltd appear to perform their roles more than other construction firms sampled in Anambra. This implies that most construction firms in Anambra do not perform their roles well, hence the high level of failed and abandoned projects seen all over Onitsha and Anambra State in general.

These revelations led further study to identify the factors that constrain the roles of the construction firms in Anambra. Literature review and field survey indicated that non application of project management techniques, insincerity of the contractors, level of personnel competence, and economic situation affected the

ability of the construction firms to effectively perform their roles in ensuring successful delivery of construction projects in the study area.

Due to the low performance witnessed in the analysis of the cost of the projects from the selected construction firms and contributory factors identified, questionnaire were designed to solicit responses from the personnel directly involved in these selected construction projects in Anambra state. The data collected were analyzed as follows:

4.1.2 Analysis of The Primary Data Collected Through the Questionnaire

The Statistics of questionnaire distribution to 120 respondents and data collected were shown below in Table 4.6. Out of the 120 questionnaire

distributed, one hundred and eleven (111) were retrieved. This represents 92.5% response rate which is good.

Table 4.6 Analysis of the Response Rate

Respondent Group	**Questionnaire Distributed**	**Number of Questionnaire Retrieve**
Construction firm owners/contractors,	12	9
Consultants,	9	7
Architects,	31	30

Engineers,	35	34
Estate/project managers	33	31
Total	**120**	**111**

4.1.2.1 Analysis of the Multiple Regression Results

The data collected from the respondents were analyzed using Multiple Regression Analysis model and the result were analyze as follows:

4.1.2.2 The Descriptive Statistics Analysis

Table 4.7 extracted from Appendix III, show that 41.61 is the mean success achieved by construction firms in delivery of construction projects, given the effects of four identified factors; non application of project management techniques, insincerity of the contractors, level of personnel competence, and economic situation. These factors collectively affected the roles of construction firms towards successful delivery of construction projects in Anambra State.

Table 4.7 The Descriptive Statistics Scores of the Factors (111 Respondents)

	Mean	Std. Deviation	N
Y	41.6126	4.14547	111
X1	19.0541	3.84196	111
X2	19.4928	3.82127	111
X3	17.1712	3.24142	111
X4	19.7505	3.25503	111

4.1.2.3 Multicollinearity Test and Correlation Analysis of Construction Project Delivery and the Four Identified Factors.

The multicolinearity test shows the level of independence of the factors in the analysis. As the coefficients tend towards 1.000, the more independence the factors are and vice versa. The correlation analysis tests the level of relationship existing between the factors and project delivery. Table 4.8, reveals the degree of correlation between construction project delivery and each of the four major predicted factors. It also shows the level of dependency or independency of the factors.

Table 4.8 The Correlation Matrix

		Y	X1	X2	X3	X4
Pearson Correlation	Y	1.000	.176	.224	.024	.415
	X1	.176	1.000	.177	.124	.123
	X2	.225	.177	1.000	.141	.131
	X3	.024	.124	.141	1.000	.057
	X4	.415	.123	.131	.057	1.000
Sig. (1-tailed)	Y	.	.009	.032	.402	.000
	X1	.009	.	.031	.097	.403
	X2	.032	.031	.	.070	.085
	X3	.402	.097	.070	.	.275
	X4	.000	.403	.085	.275	.
N	Y	111	111	111	111	111
	X1	111	111	111	111	111
	X2	111	111	111	111	111
	X3	111	111	111	111	111
	X4	111	111	111	111	111

The result show that the highest correlation (0.415) exists between economic situation and construction project delivery. This implies that the level of economic

situation (X_4) may have been so bad that is affected the level of success achieved in the delivery of construction projects (Y) by construction firms in Anambra State. On the other hand, the lowest correlation is between level of personnel competence (X_3) and construction project delivery (Y). This implies that the level of competence of the project personnel may have been so low that it affected the success level of construction projects. The result also shows that there is no case of multicolinearity among the four factors, meaning that they are independent factors and can stand for themselves in the whole analysis.

4.1.2.4 The Regression Analysis of Construction Project Delivery on the Four Factor Model

The unstandardized coefficients in Table 4.9 were used to develop a model to determine the level of effect that each of the factors have on the roles of construction firms in construction project delivery.

Table 4.9 Analysis of Multiple Regression Coefficients of Y on X_1 to X_4

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error			
1	(Constant)	29.249	3.485		8.392	.000
	X1	.195	.094	.180	2.075	.040
	X2	.249	.093	.273	3.171	.002
	X3	.075	.109	.058	.681	.497
	X4	.511	.108	.401	4.753	.000

a Dependent Variable: Y

The multiple regression model that can predict the level of effect that each factor has on the roles of the construction firms in the delivery of construction projects as shown in the equation 4.1:

$$\mathbf{Y = 29.249 + 0.195X_1 + 0.249X_2 + 0.075X_3 + 0.511X_4 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (4.1)}$$

The coefficients in the equation indicate the level of effect that each of the factors have on contractors' roles in the delivery of construction projects, when all the other factors are held constant. They represent the increase in Y, if each factor is increased by one unit, while holding all the other factors constant.

All the four factors exhibited positive effects on the role of construction firms in the delivery of construction projects. This means that as the factors increase, the level of project delivery increase given the effective roles of construction firms in Anambra State.

Table 4.10 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.808(a)	.658	.530	.63724	3.086

a Predictors: (Constant), X4, X1, X3, X2
b Dependent Variable: Y

The multiple correlation coefficient (r) of 0.808 indicates a strong positive relationship between construction project delivery and the four predetermined constraining variables. The multiple coefficient of determination (r^2) of 0.658

indicates that the proportion of the variance in the level of delivery of construction projects explained by all explanatory variables. An r^2 value of 0.658 indicates that the factors that frustrate construction firms' roles collectively account for 65.8% of the variance in the success level of construction projects in Onitsha, Anambra State. A Durbin-Watson value of 3.086 confirms the high level of correlation existing between construction project delivery and the four identified factors.

Table 4.11 Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	488.017	4	122.004	9.222	.000(a)
	Residual	1402.325	106	13.229		
	Total	1890.342	110			

a Predictors: (Constant), X4, X1, X3, X2
b Dependent Variable: Y

The ANOVA table above show the regression sum of square (SS_R) is 488.017, the Mean Square (MS) is 122.004, and the F-ratio is 9.222 were used in testing the significance of the inclusion of the four identified factors in the model developed.

The calculated F-test value of 9.222 is significant at 0.000, implying that at 5% level of significance, the inclusion of the four independent variables in the model is significant. So the model (4.1) is significant in predicting the level of construction project delivery while considering the identified factors like non application of

project management techniques, insincerity of the contractors, level of personnel competence, economic situation.

4.1.3 Hypotheses Testing

The correlation analysis and t-tests were used in the hypotheses test. The t-calculated values extracted from Table 4.9 were adopted in testing the formulated hypotheses. The t-test statistics, which test the significance between means is effective when the standard deviation of the population is unknown, is used to test the significance of the independent variable in the model. The correlation result in Table 4.12 and the t-test result in Table 4.13 modified from Table 4.9 were used for this purpose.

$H0_1$: There is no significant correlation between the capabilities of contractors and successful delivery of construction projects in Anambra State.

Table 4.12 Correlations Result of Capabilities of Contractors and Construction Project Delivery

		Z	Y
Z	Pearson Correlation	1	.524(*)
	Sig. (2-tailed)		.018
	N	111	111
Y	Pearson Correlation	.524(*)	1
	Sig. (2-tailed)	.018	
	N	111	111

* Correlation is significant at the 0.05 level (2-tailed).

The Pearson r- calculated value of 0.524 is significant at 0.018 which is less than the p-value of 0.05. we therefore reject the null hypothesis (H_{01}) with the conclusion that there is significant correlation between the capabilities of contractors and successful implementation of construction projects in Anambra State.

Table 4.13 Multiple Regression t-test Result

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	29.249	3.485		8.392	.000
	X1	.195	.094	.180	2.075	.040
	X2	.249	.093	.273	3.171	.002
	X3	.075	.109	.058	.681	.497
	X4	.511	.108	.401	4.753	.000

a Dependent Variable: Y

$H0_2$: Project management techniques have no significant effect on construction project delivery.

From Table 4.13, the t-cal value of 2.075 as the p-value of 0.040 is significant in the prediction of Y. We therefore reject the null hypothesis (H_{02}) with a conclusion that project management techniques have significant effect on construction project delivery.

$H0_3$: Contractors' insincerity cannot significantly affect successful delivery of construction projects.

The t-calculated value of 3.171 is significant at 0.002, implying that at 0.05 level of significance, contractors' insincerity is significant. Hence, the null hypothesis is rejected and alternative hypothesis accepted. Therefore, contractors' insincerity can significantly affect successful implementation of construction projects.

$H0_4$: Qualified personnel have no significant effect in the delivery of construction projects.

The t-cal. value of 0.681 is significant at 0.497 level, implying that at 0.05 level of significance qualification of project personnel has no significant effect on construction project delivery. We therefore accept H_{04} with a conclusion that qualified personnel have no significantly affect the implementation of construction projects.

$H0_5$: Economic situation cannot significantly affect the delivery of construction projects in Anambra.

The t – cal value of 4.753 is significant at 0.000 level, implying that the economic situation is critical and makes significant effect on construction project performance in Anambra state. We therefore reject H_{05} and conclude that economic situation can significantly affect the implementation of construction projects in Anambra State.

To determine the most significant factor that constrain the roles of construction firms in the delivery of construction projects in Anambra, the study prioritize the factors by ranking them based on the result of the analysis.

4.1.3 Priority Ranking

Ranking of the factors was done based on their level of effect on the roles of construction firms in delivering construction projects in Anambra State considering their t-test values.

Table 4.14 Priority Ranking of the Factors

S/No.	Identified Factors	t-calculated Values	p-values	Ranks
1	Non Application of Project Management Techniques	2.075	.040	3rd
2	Insincerity of The Contractors	3.171	.002	2nd
3	Level of Personnel Competence	.681	.497	4th
4	Economic Situation.	4.753	.000	1st

Based on the above results in Table 4.14, the study observed that the economic situation greatly affected the roles of the construction firms in construction project delivery in Anambra state. this is followed by the level of insincerity of the

contractors while the qualification of project personnel exerted the least influence on contractors' roles in the delivery of construction projects. This result is depicts reality given the level of economic recession, instability and policy summersault witnessed in Nigeria recently. The bad economic situation creates fertile ground for corruption and all manner of indiscipline in a bid for survival of the fittest. The situation is not different in Anambra state. This economic situation may have contributed to negligence of most construction firms regarding their roles in ensuring successful delivery of construction projects in the area under study.

4.2 Discussion of Results

Considering the analysis made in this study, the following deductions can be made:

i. Most of the selected construction projects experienced fatigue as they incurred unfavourable CPI in the analysis of the cost. Out of the five (5) construction firms surveyed, only IDC Ltd appear to perform well in that the CPI of their projects are favourable. This may mean that the personnel of IDC are more committed to their duties in achieving high level of successful delivery of construction projects in Anambra State more than the other selected firms (Tables 4.1 to 4.5). This is the reason behind the call from various quarters on the need for the Nigeria Society of Engineers (NSE) and others organized bodies in the construction industry to probe strictly into the activities of construction firms in

Nigeria in order to curtail the menace associated with construction projects in Nigeria. Factors like non application of project management techniques in planning and implementing construction projects, insincerity of the contractors, low level of personnel competence in handling construction projects, and bad economic situation in Nigeria have been closely associated with this low performance of construction given the roles of the contracting firms in Anambra state.

ii. The average success achieved by construction firms in delivery of construction projects is 41.61 and this is low given the effects of four identified factors (see Table 4.7). Practically, this cannot assist in achieving the needed development of Onitsha and its environs. This is the reason why Anambra appear to be developing in a very slow pace despite the tremendous efforts of the past administrations to rapidly develop the city through the provision of needed infrastructure through the implementation of construction projects.

iii. The correlation result in Table 4.8 show that the highest correlation (0.415) exists between economic situation and construction project delivery. The implication is that the bad economic situation may have been so high that it affected the level of success achieved in the delivery of construction projects by construction firms in Anambra State and its environs. This is the reality of the situation in the area under study as corruption and indiscipline controls the

activities in of most contractors in Nigeria, and Anambra State in particular. The coefficients in the equation (4.1) indicate that the all the four identified factors show positive effects on the role of construction firms in the delivery of construction projects with bad economic situation influencing the roles of construction firms in project delivery, especially construction projects. This means that as the factors increase, the roles of contractors towards project delivery increases. This result corroborates to the fact that economic situation influences the activities the citizens and tend to drive them towards corruption and indiscipline and this is not healthy for economic growth (Choi, 2015). The implication is that current state of poor development of Anambra State can be attributed to the low level of performance witnessed in most construction projects due to the poor roles that most contractors exhibit in construction activities.

iv. The Pearson correlation analysis show that there is significant correlation between the role of construction firms and successful implementation of construction projects in Anambra State (see Table 4.12). This result depicts reality as many cases of construction project failures have been traced to the negative roles of the stakeholders during planning and the execution stages of projects (Sadibo, 2016).

v. The hypothesis testing show that three of the factors have significant effect on the construction firms' roles in construction project delivery in Anambra. Only personnel qualification has no significant effect on the roles of construction firms. This is a surprise because personnel qualification should have played significant role the delivery of construction projects. The reason could be that the level economic recession and instability could have played down on personnel qualification as a corrupt staff cannot perform well irrespective of the level of qualification.

Bad economic situation and high level of indiscipline affect most professionals in the delivery of their roles and this is the case with most personnel of the construction firms in Anambra State Nigeria. The low level of economic situation in Nigeria have led to insincerity of most contractors which made them to employ the crude and cheap techniques of project planning and implementation which has been the bane of development in most parts of the country, and Anambra specifically.

This study is a wakeup call on construction firms to embrace their responsibility with commitment in order to achieve greater success in the implementation of construction projects in Anambra State and other states of the federation.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Based on the results and discussions made, it can be concluded that the research objectives have been successful accomplished. From this study, it also can be concluded that most of the findings affirm the statements in existing literature on the role of the construction firms in improving project performance in the construction industry. From the findings of the analyzed data, the following conclusions can be drawn:

Construction firms' roles are critical to successful delivery of construction projects. Negligence of their roles have severe negative influence on projects, but most times construction companies appear to follow the orders of their clients, mostly politicians who have no knowledge of construction projects, hence projects suffer. This study should be an eye opener to construction firms to embrace their professional ethics in the management of projects, especially construction projects.

The poor adherence to the roles of the construction firms have led to the low success achieved by these construction firms in Anambra State. However, Onitsha city appear to be developing in a very slow pace despite the tremendous efforts of

the past administrations to rapidly development the city through the provision of needed infrastructure through the implementation of construction projects.

The high level of significant relationship existing between the bad economic situation and construction project delivery mean that the bad economic situation in Nigeria have made it difficult for construction firms to effectively perform their roles in order to achieve high level of success in the delivery of construction projects in Anambra State. The resultant effect of bad economic condition of Nigeria which include corruption and all manner of indiscipline controls the activities of most contractors in Anambra State and Nigeria in general.

The effective application of project management techniques has been proven to be significant in the planning and implementation of construction projects. Most times, construction firms and their construction personnel lack knowledge of this veritable tool. As a result, crude techniques are being applied in the planning and implementation of construction projects, especially, in Anambra.

Honesty and transparency are vital in dealing with clients. The high level of insincerity seen in most Nigerian contractors in performing their roles as regards construction projects is worrisome. This level of insincerity has made corruption significant in the total management of construction projects.

Qualified personnel are asset for proper management of construction projects. Though not statistically significant, their effects are great in the planning and implementation of projects. Since human factor is the factor that drives other factors of production, if unqualified personnel are allowed to plan and implement construction projects, as seen in Onitsha, development will hardly take place as most projects will experience cost and time overrun.

Bad economic situation and high level of indiscipline affect most construction professionals in the delivery of their roles and this is the case with most personnel of the construction firms in Anambra State Nigeria. The low level of economic situation in Nigeria have led to insincerity of most contractors which made them to employ the crude and cheap techniques of project planning and implementation which has been the bane of development in most parts of the country, and Anambra State specifically. Recommendations were made based on this conclusion.

5.2 Recommendations

The following recommendations are made to improve contractors' role in achieving successful construction projects in Anambra State, Nigeria:

a.) First, Government policies should be formulated to create a conducive environment for construction firms to be active in their roles for improve success

in the delivery of construction projects in Anambra. This will minimize corruption and indiscipline, hence improve project success and rapid development of Anambra State and its environs.

b.) Construction firms should apply the project management techniques like Critical Path Method (CPM), Project Evaluation and Review Technique (PERT), etc. This will assist in the role of construction firms towards improve success in the delivery of construction projects. Where the personnel lack the knowledge and/or the existence these tools, they should be trained and retrained in the use of these veritable project planning and implementation tools.

c.) As part of performing their roles, construction firms should ensure that qualified personnel are employed to handle the planning and implementation of construction projects. Development of Anambra will be rapid as qualified staff will be on ground to ensure the provision of the needed infrastructure for the economic development of the citizens of Anambra State.

d.) Honesty and transparency should be the watch word for construction firms in performing their construction activities when dealing with clients. This will bring trust and improve client/contractor relationship, thus allowing construction firms to properly play their role to ensure project success and shun corruption and other vices which undermine their roles.

e.) The NSE and other organized professional bodies in Nigeria should revoke the operating license of construction firms found violating the professional ethics and roles in managing projects. This will ensure that professional ethics are observed by construction firms in the performance of their roles for enhance project delivery in Anambra Stat.

f.) Favourable economic policies are recommended to reduce the level of economic recession in the Nigeria economy. This will reduce insincerity exhibited by most construction firms and improve expertise the execution of construction projects by engaging qualified personnel with the requisite knowledge regarding project management techniques for proper planning and implementation of construction projects. Also it will minimize insincerity of contractors that them to employ the crude and cheap techniques of project planning and implementation which has been the bane of development in most parts of the country, and Anambra in particular.

5.3 Contribution to Knowledge

The study has unveiled the level of cost performance of construction projects given the roles played by construction firms in their planning and implementation.

Also, the major factor that affect construction firms' roles and hinder successful delivery of construction projects is poor economic condition of the country which have made it difficult for most firms to perform their construction roles credibly.

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APPENDIX I
QUESTIONNAIRE

INSTRUCTION: Please indicate the level of effectiveness or otherwise of the causative factors that inhibit construction firms role in the implementation of construction projects according to your perception of the factors.

Factor I (X_1) Non Application of Project Management Techniques		SA	A	N	D	SD
1	Application of crude technique of project management affect the level success achieved in construction projects.					
2	Construction firms' roles are affected are hindered if the wrong techniques are applied in the management of construction projects.					
3	Most construction firms lack knowledge of proper techniques for project management					
4	Construction firms should train their staff on the need and application of project management techniques for successful project implementation					
5	Proper application of project management tools ensures project success.					

Factor II (X_2) Insincerity of the Contractors		SA	A	N	D	SD
1	Lack of honesty seen in most construction firms affect their roles on achieving high project performance					
2	Inadequate contractor experience negates their roles					
3	Clients lack interest in contractors that are not sincere in delivering their roles					
4	Unreliable contractors cannot perform their construction roles creditably.					
5	Poor quality of construction materials used by most construction firms hinder the achievement of construction projects.					

Factor III (X_3) Level of Personnel Competence		SA	A	N	D	SD
1	The level of construction personnel engaged in construction projects affect the roles of construction firms in the implementation of construction projects.					
2	Inaccurate time and cost estimate affect project realization as planned and undermine the roles of construction firms.					
3	One of the roles of construction firms is to employ qualify staff, but most of them engage incompetent personnel to handle projects.					
4	The level of staff engaged in project determine the level success achieved.					
5	Construction firms should earnestly engage qualified personnel to complement their roles in the task of achieving successful construction projects					

Factor IV (X_4) Economic Situation		SA	A	N	D	SD
1	Poor economic condition affect the roles of construction firms.					
2	Instability in the nation economy make the price of construction materials unstable.					
3	When price of construction materials are unstable, the roles of construction firms are negatively affected.					
4	The level of economic recession witnessed in Nigeria affected the roles of the construction firms resulting to cost and time overruns.					
5	Good economic condition creates a conducive environment for construction firms to perform their roles effectively.					

Thank You for your time.