ASSESSMENT OF FACTORS AFFECTING TIMELY DELIVERY OF CONSTRUCTION PROJECTS BY CONTRACTORS IN EDO STATE, NIGERIA.

AN ESSAY PROJECT SUBMITTED TO THE DEPARTMENT OF QUANTITY SURVEYING, AUCHI POLYTECHNIC, AUCHI IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF HIGHER NATIONAL DIPLOMA IN QUANTITY SURVEY

BY

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CERTIFICATION

This is to certify that this work "ASSESSMENT OF FACTORS AFFECTING TIMELY DELIVERY OF CONSTRUCTION PROJECTS BY CONTRACTORS IN EDO STATE, NIGERIA" was undertaken by **DAUDA ABDULAFEEZ** in the Department of Quantity Surveying, Auchi Polytechnic Auchi, Auchi.

Mr. Sumanu S.O. **(Project Supervisor)**	**DATE**
Dr. QS Ogbu Chukwuemeka Patrick **(External Supervisor)**	**DATE**

DEDICATION

This project is dedicated to Almighty Allah, the giver of life, for his protection and provision, good health and His Grace towards me and for the success of this work.

ACKNOWLEDGEMENT

With profound sense of gratitude, I wish to express my appreciation to Almighty Allah for wisdom, good health, provision and protection throughout and for making our aspiration of yesterday dream a reality.

My sincere appreciation goes to my Project Supervisor Mr. Sumanu S.O. for his rightful supervision and direction throughout the project writing. May God bless you sir.

My special appreciation goes to my lovely parent, Mr. and Mrs. Dauda for their encouragement and support financially, materially and for their prayers throughout our ND programme. May you eat the fruit of your labour (Amin Ya Allah) and also to my siblings, friends (Ridwan Sanusi), well- wishers, thank you for been there for me for making my academic pursuit a success.

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ABSTRACT

This study was carried out to assess the factors affecting timely delivery of construction projects by contractors in Edo State and to identify the challenges faced by contractors in timely delivery of project in Edo State Nigeria, Primary method of data collection was adopted and questionnaires were distributed to aim the data in carrying out the analysis. Mean Score and Relative Important Index was used to analysis the data obtained, and it was discovered that shortage of construction materials with RII (0.702) ranked 1, Monetary / funding problems ranked 2 with RII (0.686 and Deficiency of site workers ranked 3 with RII (0.569) and other factors. It is therefore paramount for contractors to should ensure they keep to contractors agreement, the study recommends that employers should be financial capable before embarking on construction projects, and contractors should ensure the adequate provision of equipment and materials to facilitate the projects.

CHAPTER ONE

1.0 Background of the Study

The construction industry is very important in the economic development of any nation especially in expanding economics like Nigeria. It controls the capital flow, as well as labor resources, which have cost implications. As a result of this, proper management of these resources is considered an important aspect of project works. Likewise if the resources are adequately harnessed, issues that relate to cost overrun would not arise which could result to variations and claims. Some firms rely on claims as a result of variation incurred during the course of the project execution and afterward evaluate their profit after incurring necessary and unnecessary costs on a project.

The goal of all parties (owners, consultants, contractors, subcontractors and suppliers) involved in construction projects in either the public or private sector is to successfully complete the project on schedule, within planned budget, with the highest quality and in the safest manner. Oyedele, (2013), remarked that construction projects are embarked upon with a view to achieving the key objectives of cost contract, schedule while meeting the quality standard initially set. As noted or revealed by Amade (2014), construction projects in Nigeria and the world over are confronted with a lot of complexities and ambiguities due basically to uncertainties in meeting their respective due dates. Unfortunately, the construction industry in Nigeria witnessed an unprecedented fall in the standards of construction projects delivery; Projects were poorly conceived, badly planned and executed unprofessionally. The life span of most construction projects in Nigeria is unpredictable as there are many abandoned projects littering everywhere as a result of poor planning (Oyedele, 2013; Ubani and Ononuju, 2013;

Amade, 2014). Most capital projects fail and are abandoned in different stages of their development, while others that were completed performed poorly in delivering the intended services. Frequent cases of failed and abandoned public sector projects are consistently causing serious concern to all the stakeholders within the construction industry (Olapade and Anthony, 2012; Amade, 2014). Onyekpere (2011) lamented the alarming figures representing abandoned public sector projects in Nigeria. The Presidential Project Assessment Committee (PPAC) set up in March 2010, by former President Goodluck Jonathan to look into cases of abandoned Federal Government projects in Nigeria, reported or indicated that there were about 11,886 abandoned projects that would require an estimated sum of N7.78 trillion to complete. Even if the government does not embark on any new project, it will take an equivalent of over five years budgeting about N1.5 trillion annually to get them completed bearing in mind the non-inclusion of cost overruns and delays (Amade, 2014). In Edo State, most of the construction projects delivered for public use depict evidence that they were not successfully executed. The resultant effects were incidences of schedule and cost overruns, low quality projects and outright abandonment. This could be as a result of lack of experience from the contractors in executing the projects, lack of the knowledge in handling specific type of projects and corrupt tendencies amongst others. With this in mind, it would be interesting to view what factors project parties consider as important factors for a contractor to be successful in project delivery. This study investigates how to improve the performance of contractors in project delivery perspective. The Nigerian construction industry is facing an acute and endemic delay problem. The problem of delays in the construction industry is a global phenomenon. In Nigeria, it is observed that the performance of the construction industry in terms of timely is poor. Delay manifest in construction projects when parties involved in project contribute to the non- performance of

planned and scheduled activities within the planned time and it is a major setback in the construction industry in Nigeria. In construction, the word "delay'' refers to something happening at a later time than planned, expected, specified in a contract or beyond the date that the parties agreed upon for the delivery of a project (Pickavance, 2005). Lo, Fung and Tung

(2006) define delay as the slowing down of work without stopping construction entirely and that can lead to time overrun either beyond the contract date or beyond the date that the parties have agreed upon for the delivery of the project. Dissanayaka & Kumaraswamy , (2008) emphasized that timely delivery of projects within budget and to the level of quality standard specified by the client is an index of successful project delivery. Uncontrolled delay may generate various unexpected negative effects on the projects such as conflicts, claims, abandonment and litigation between the parties involved in building projects which therefore incur additional cost. Odeyinka & Yusif , (1997) have shown that seven out of ten projects surveyed in Nigeria suffered delays in their execution. In Nigeria, public projects tend to suffer delay and time overrun more than private sector projects. Although the contract parties agreed upon the extra time and cost associated with delay because normal practices usually allow a percentage of the project cost as a contingency allowance in the contract price but in many cases there are problems between the owner and contractor as to whether the contractor is entitled to claim the extra cost. Therefore, delays in construction projects give rise to dissatisfaction to all the parties involved and the main role of the project manager is to make sure that the projects are completed within the budgeted time and cost. The study seeks to identify and assess the impact of delay on building projects in Edo State, Nigeria with the aim of improving construction performance in delivery time.

1.2 Statement of the Problem

Designing and implementing an effective project is a huge challenge for most contractors who seek government contracts in Nigeria. A study conducted by Obuji (2003) in some West African countries including Nigeria, revealed that most small scale contractors are not favoured during a tendering process by prospective clients because, they neglect various factors that affect the success and failures of delivering a project in time. Some contractors do not structure and draft their tenders in an appropriate manner; hence their chance of being contracted is reduced.

1.3 Research Questions

i. What challenges do contractors in Nigeria face when delivery a construction project?
ii. What are the factors that affect contractors in timely delivery of construction projects?
iii. What are the measures that could be adopted in mitigating the factors which hinder timely delivery of construction projects?

1.4 Aims and Objectives of the Study

The aim of this research is to assess the factors affecting the timely delivery of project by contractors when applying for a construction project in Edo State. The aim of this research can be broken down into the following objectives:

i. To identify the challenges faced by contractors in timely delivery of project in Edo state Nigeria
ii. To assess the factors that affect contractors in timely delivery of construction project.
iii. To evaluate the measures that could be adopted in mitigating the factors which hinders the timely delivery of constructions projects

1.5 Significance of the Study

The findings of this study provide necessary information to the Researcher and various development agencies for purposes of anticipating challenges facing public construction projects and finding solutions to those challenges/problems; it is believed that once the causes of construction delays have been identified, measures can be put in place to ensure that delays are avoided in project. The study is beneficial to the contractors because once the factors likely to affect the projects are identified, measures are put in place to ensure the projects do not fall behind planned schedules..

1.6 Scope of Study

This research focuses mainly on the assessment of the factors that affect timely delivery of construction projects, using construction companies and private contractors in Edo State as case study. Results and recommendations may not be used to generalize other construction companies or contractors in other parts of Nigeria, as the researcher could not cover a wider scope due to financial and time constraints. Based on the findings of this study other possible researchable areas may include studies on the various effects of other aspects of contracts such as contract laws in Nigeria and contract management and control.

1.7 Limitation of the Study

The only limitation faced by the researcher in the course of carrying out this study was the delay in getting data from the various respondents. Most respondents were reluctant in filling questionnaires administered to them due to their busy schedules and nature of their work. The researcher found it difficult to collect responses from the various respondents, and this almost hampered the success of this study.

CHAPTER TWO

2.0 Literature Review

Globally, several researchers have studied delays in construction projects; Ogunlana (2009) researched on the success factors in large scale construction projects in Thailand and concluded that project planning and control, project personnel and involvement of clients contributed to the project success. Al-Najjar (2008) in his study concluded that some of the significant factors causing time overrun in construction projects in Gaza Strip included lack of materials in the market, cash shortage during construction, Israeli attacks and border closures. Ayman (2010) outlined that the causes of delays on 130 public projects in Jordan were related to designers, user changes, weather, site conditions, late deliveries, economic conditions and increase in quantity. In another study, Alaghbari Wa'el (2017) concluded that the factors causing delay of building construction projects in Malaysia included financial problems, late supervision, lack of materials on the market and poor site management. Another research conducted in Malaysia by Hussin and Omran (2012) specified that financial problems of developers, contractors, the local and national governments and stakeholders led to neglect of 70 percent of Malaysian transport construction projects. Al-Kharashi and Skitmore (2012) identified difficulties in project financing, poor site management, poor qualification of the contractor's team and delay in approving changes in scope as the factors contributing to delay in Saudi Arabian Public construction projects. Mahamid (2011) identified commencement delays, poor resource management, insufficient inspectors, and communication breakdown between construction parties as some of the contributors of time delay in road construction projects. Al-Tabtabai (2012) established that slow financial and payment procedures and decision-making process, limited authority among supervision staff, risk allocation mainly on the contractor and lack of design drawings coordination were the causes of

delays in construction projects in Kuwait. Sambasivan and Soon (2007) established that poor planning and site management, inadequate supervisory skills on the part of the contractor, delayed payments, material shortages, labor supply shortages, equipment availability and failure, poor communication and rework were the most important causes of delays in the Malaysian construction industry. Globally, what the researchers identified to be causes of delay in project completion include delays related to designers, user changes, weather and site conditions, late deliveries, poor planning and financial conditions, lack of supervision, poor resource management among others.

Therefore, if the performance of Nigerian contractors in project delivery must be improved, it is pertinent to seek for ways and factors to improve their performance in project delivery. Identifying ways and factors of improving contractor`s performance in project delivery, the client will benefit most as contractors will deliver projects without a risk being placed on the client who is saddled with the ownership and occupation risks. Following the above revelation and in response to non- performance of contractors in project delivery, the reasons for the underperformance of contractors in Nigeria in particular Edo State were studied. This was with a view to suggesting possible remedial measures. This study assessed criteria for project construction performance; it also assessed the factors (established from literature) affecting contractors performance in construction project delivery according to their relative importance. In addition, the study evaluated factors for improving contractor performance in project delivery.

The results showed that the most important factors are financing and payment for completed works, poor contract management, changes in site conditions, shortage of material, and improper planning. Odeh & Battaineh, 2002 investigated delay causes in large construction projects in Jordan, the causes identified included design changes, poor labour productivity, and inadequate

planning. Toor & Ogunlana , 2008 studied construction delays in Thailand. They found that the problems faced by the construction industry in developing economies like Nigeria could be:

a) Shortages or inadequacies in industry infrastructure (mainly supply of resources);
b) Caused by clients and consultants and
c) Caused by contractor's incompetence/inadequacies.

Odeyinka & Yusuf, 1997 have addressed the causes of delays in building projects in Nigeria. They classified the causes of delay as project participants and extraneous factors. Client-related delays included variation in orders, slow decision-making and cash flow problems. Contractor-related delays identified were: financial difficulties, material management problems, planning and scheduling problems, inadequate site inspection, equipment management problems and shortage of manpower. Extraneous causes of delay identified were: inclement weather, acts of nature, labour disputes and strikes. Furthermore, delay has been recognized to affect project performance negatively.

2.1 The Construction Industry

The construction industry is one of the most important industries underpinning the economic development of any nation. Concurs that the construction sector makes undeniably important contribution to the socio-economic expansion process in developing countries by contributing meaningfully to the gross domestic product. The National Treasury of the Republic of South Africa described the building construction industry as a broad collection of industries and sectors adding value in the creation and maintenance of fixed assets within the built environment. Notably, observed that the construction industry must operate as a single unit rather than as a complex cluster of industries in which building material sectors is among them. The construction

industry plays a very essential role in all developed and developing counties. In Europe, for example, the construction industry is the key industry on the entire continent, employing more than 7% of all European workers,. In the US, the construction sector contributes 14% to the gross national product and some 8% of total employment. By virtue of its size, the construction industry is one of the largest consumers of energy, material resources, and water, and also a formidable polluter of the environment. Materials such as straw, strands, clay, lime and brick occurred naturally as building materials. Due to improvements in technology and science at the beginning of 20th century, materials with better performance and durability were introduced, for example, reinforced concrete, steel, plastic and metal. The process of housing development must be based on principles of sustainability, which should be applied throughout the process from conception to construction of the project. Costs make sustainability an essential component with a massive effect on the cost of construction and basically the affordability (or lack of) of proposed construction projects. An appropriate available and sustainable shelter is indispensable; a true basic need of all human beings. This, housing options must constantly be available, affordable and certainly durable in the built environment.

2.2 Project

A project is a temporary endeavor undertaken to create a unique product, service or result (PMI, 2008). One of the features of a project is that it is temporary; this fundamentally means that every project has a sure beginning and end. The end of a project is reached when all its objectives are achieved or when it is clear that the objectives can’t be met which leads to its termination (PMI, 2008). Every project that has been initiated gets to an end at some point whether its objectives have been accomplished or not. Project completion (completing the contract) can either follow successful completion of the natural sequence of project activities

directed toward meeting the specified objectives, or a sudden decision to cease the project effort in mid-course (Robert and James, 2013). A project plan guides the project team on what to do in terms of the time frame and the activities to be performed; when the project plan is firmly followed by the project team, there is a very high likelihood that the project will be completed within the stipulated time but on the contrary, if it is not followed strictly a project is likely to delay thereby prolonging beyond its planned completion time.

According to Sanders and Eagles (2017), delay is an event that causes extended time to complete all or part of a project; it is the postponement of time from the original estimated completion time which might be caused by the contractor, owner or consultant as well as external factors, Koushki and Kartam (2004). On the other hand, (Pickavance, 2005) defines delay as something happening at a later time than planned, expected and specified in a contract or beyond the date agreed upon for delivery of a project. Generally, delay is a common phenomenon in every construction project but its degree differs significantly from project to project. Construction delay is considered one of the greatest problems in the construction industry and these delays commonly have an antagonistic bearing on project success in terms of time, cost and quality.

2.3 Factors Affecting the Completion of Public Construction Projects

- **Timeliness of payment**

Most government funded projects are hurdled by the financial constraints during the time of their implementation. Since most budgets are based on operating departments, it is important to superimpose key nondollar factors that would signal whether the strategic programs are proceeding on schedule. The concern for financial measurement accuracy in the budgets seems to have jeopardized the concern for relevance in some companies' budgets (Holland et al., 2009).

The various program alternatives need to be economically evaluated in two respects. First, there are different ways to achieve a particular strategic implementation action and these alternatives should be compared. A cost/benefit analysis is needed, but unfortunately is done too often on narrow grounds. By only looking at the financial costs and benefits without taking a strategic risk- assessment into account one might easily pursue the less favourable project or fail to search for less risky alternatives (Porter 1985). The choice of plan alternative should put major emphasis on maintaining strategic flexibility. Unfortunately, a too narrow financial analysis typically seems to take place which does not pay proper attention to maintaining strategic flexibility. The second aspect of the economic evaluation of the response strategizing activities relates to the aggregation of strategic programs into an overall "package" for the division. Many businesses do not take existing programs into account when choosing the overall "package" of strategic programs; thus, the continued relevance of existing strategic programs is not examined (Graham and Englund, 1997).

- **Political Factors**

According to Markus and Tanis (2010), political interference plays a critical but poorly understood role in determining the success or failure of the processes of project management. An analysis of the environment of project management functions as a facilitator both for analyzing the role of leadership in system development and for distinguishing three forms of leadership that mostly come into play in efforts to form international institutions: structural leadership, entrepreneurial leadership, and intellectual leadership (Holland, 2019). In projects, stakeholders have their own personal interests which are most of the time conflicting with the project and therefore, it is the project manager’s responsibility to understand these conflicts early enough and solve them in order to ensure that the project objectives are met including completion of projects

in time.Those in power are elected by the people to represent them and in participate in coming up with policies which affect the citizens and this includes the construction of public projects; these politicians have a great role to play as pertains to the success or failure of projects. When confronted by political competitors in their constituencies, politicians may be incentivized to improve the quality of possibly vote-winning public projects.

- **Resource Allocation**

Resources are materials that the project requires for its implementation and completion as planned Haugan (2002). Resource allocation involves planning for the resources that the project requires and therefore the completion of a construction project at a maximum efficiency of time and cost requires careful scheduling and allocation of primary resources of manpower, equipment and materials (Sears et al. 2015). Resources which include, labour, equipment and machinery must be proportionate not only with the scope of work but also with the stipulated completion time and therefore, it is important to note that completion time is more or less indirectly proportional to the allocated resources (Ramakrishna, 2010). Lack of facilitation of the project processes in terms of material allocation will mean that no activity can begin which in the end leads to delays. Project activities need resources for their execution and typically, resources are only available in limited amounts (Demeulemeester, 2009). Allocation of adequate and necessary resources should therefore be taken into consideration during the project planning phase. Resource planning involves determining what physical resources (people, equipment, materials) and what quantities of each should be used to perform project activities (PMI, 2008). Gwadoya (2010) observed that financial resources for construction projects should be estimated realistically at the planning stage of the project; proper resource estimation must be done by determining the quantities and type of materials required in the entire project. Sometimes the

human resource is ignored by the project manager; it is not just important to have the human resource in the project, what is most important is to have the right people with the required knowledge, skills and experience in the project. If people who are qualified and with the required expertise are employed to work on a project, then it becomes easier in the execution of the work

- **Project Monitoring**

Monitoring is the art of collecting the necessary information with minimum effort in order to make a steering decision at the right time, (Gudda, 2011). It is a continuing function that aims primarily to provide project management and the main stakeholders of an ongoing program or project with early indications of progress, or lack thereof, in the achievement of program or project objectives (UNDP, 2016). All those involved in the project need to know how the project is progressing in comparison to the set plans and make judgment of the actual progress/state of the project. Monitoring is a recurring process involving comparison of actual performance to scheduled performance, estimates to completion and corrective actions based on such estimates which often require either performance adjustments or schedule revision (Marco, 2011).Project monitoring is important in projects because it determines the project success by tracing the key elements of a project which include the inputs, activities and outputs. The projects are continually monitored on how they are progressing and therefore it is easy to identify any deviations from an existing plan and this gives real-time update to allow for make appropriate project control policies and decisions, if project deviations are identified as soon as they occur, they can be corrected thereby allowing the project to complete as planned. Monitoring enables the project to track the performance of project on a continuous basis so as to ensure that everything is implemented as planned. Waithera (2015) concluded that when all the stages of the

project are monitored and information collected, it can guide future related projects on what to do or avoid in order achieving the objectives.

2.4 Project Management Processes

Project management processes are normally divided into initiating, planning, executing, controlling and closing processes (Prabhakar, 2008); from initiation, there are several tasks that must be performed within the stipulated time frame in order to achieve the objectives including completing the project on time. Planning and scheduling define what needs to be done, which is to do it and the time it will take for completion and although there are plans to guide the project teams, more often than not, most projects fail to complete as outlined in the project plan. Taking the time to develop a well-thought-out plan is critical to the successful accomplishment of the project objective (Pinto, 2011); this plan is a critical tool as it will always act as a reference during the project implementation stage.

CHAPTER THREE

3.0 Research Methodology

3.1 Introduction

The research methodology discusses method that will be used in the project to provide data in order to investigate the research question in the study. This chapter deals with the various methods or sources of data used in obtaining materials and information needed by the researcher for writing the project so as to obtain and achieved meaningful, accurate and correct result in carrying out the research work. This chapter of work is organized around the following major topics: Research designs, the study population, sampling frame. Sample size, sampling techniques, data collection instrument, method of data collection as well as the method of presentation and analysis.

3.2 Research Design

Research design is the plan of strategy which indicates how data related to the research will be collected and analyzed (Brandon, 2000). A survey research will be adopted for this study because it involves the use of questionnaire in addressing the aim and objectives of this research in the form of questions.

3.3 The Population of Study

Popoola, (2011) defined population as the totality of the items or objective within the universe of study. It often connotes all the members of the target of the study as defined by the aim and objective of the study. The targeted population for this study shall include registered Quantity Surveyors and quantity surveying students.

The breakdown of the respondents is shown in table1 below:

Respondent	Population
Contractor	50
Client	45
Architect	35
Quantity Surveyor	40
Engineers	25
Total	**195**

3.4 The Sampling Frame

A sample is a subset of a population selected to participate in the study. It is a fraction of the whole, selected to participate in the research paper. According to Brandon (2007), there are several approaches to determining the sample size. The adequacy of sample is addressed by how well it represents the whole population of participants from which the sample is drawn.

The breakdown of the respondents is shown in table 2 below:

Respondent	**Population**
Contractor	45
Client	35
Architect	35
Quantity Surveyor	40
Engineers	40
Total	**195**

3.5 Sample Size

There are several approaches to determining the sample size. For the purpose of this study, applying formulae to calculate a sample size will be adopted. There are several formulas for determining sample size, for population that are large; Yamare (1967) developed an equation to yield a representative sample for the population.

$$n = \frac{N}{1+N\ (0.05)^2}$$

Where N is the population size and n is sample size, e is 0.05. Therefore, for a 100 population size,

$$n = \frac{165}{1 + 165\ (0.05)^2} = 165\ Respondents$$

The breakdown of the respondents is shown in table 3 below:

Respondent	**Population**
Contractor	35
Client	40
Architect	35
Quantity Surveyor	45
Engineers	35
Total	**195**

3.6 Sampling Techniques

Odeyinka (2000) stated that the process of sampling or selection of population from which the characteristics of the large population can be inferred has been accepted as a legitimate and expeditious method of research. In carrying out this research work, the sampling techniques that will be used in the collection of data is referred to as Random sampling. It is the method in which all the respondents with the population of study have equal and same chance of contributing to the subject matter.

3.7 Data Collection Instrument

The data for this research will be generated through opinion-based questionnaire method. A close and opened questionnaire method will be adopted for this study, open questionnaire because questionnaires will have a set number of responses as determined by the researcher while open questionnaire because it gives the respondents the room to express their own opinion base on the study (Eblitemhem, 2002).

3.8 Method of Data Collection

The data to be used in this research work will be collected by hand. The questionnaire will be distributed and collected back by hand. There are basically two sources of data collection which includes: primary and secondary source.

3.8.1 Primary Source: In primary source, the major instrument used in collecting data comprise of questionnaire and oral interview. The oral interview will be used in a situation where the respondents are observed incapable of comprehending the ground intents of the questions.

Also where it is suspected that using oral interview will facilitate the respondents where he might deliberately or accidentally avoid any questions in the questionnaire.

3.8.2 Secondary Source: In secondary source, data to be collected will include: written materials in similar matter, newspapers, building journals, information obtained from websites such as Google and the likes.

3.9 Method of Data Presentation and Analysis

Tables will be used in the presentation of data for the purpose of this research while data will be carefully analyzed statistically using relative importance index for objective one and mean item score for objective two and three.

3.9.1 Mean Item Score: Scores are ways of manipulating your data for analysis. You can assign a score to each question code and then calculate analysis using the score instead of the code. If you have a satisfaction question in your survey or other question where users are asked to rate something on a scale, you can correct this information by useful mean values by analyzing the responses using a score. The Mean Item Score (MIS) will be derived from the following formula (Lim and Alum, 1995).

$$MIS = \frac{1n1 + 2n2 + 3n3 + 4n4 + 5n5}{\sum \mathrm{N}}$$

Where;

n1 = number of respondents for strongly disagree

n2 = number of respondents for disagree

n3 = number of respondents for neutral

n4 = number of respondents for agree

n5 = number of respondents for strongly agree

N = Total number of respondents

3.9.2 Relative Importance Index (RII)

The relative importance index (RII) is the mean for a factor which gives it weight in the perception of respondents. The factor with the highest weight has RII=1 while the next factor with lower weight has RII=2 and so on. This is calculated as follows (Kometa and Olomolaiye, 1997).

Relative index = Σ W = 5n5 +4n4 + 3n3 +2n2 + 1n1

A *N 5N Where; W is the weight given by respondent to each prequalification criteria range from 1-5. A is the maximum height, 5 in this case, N is the sample size (total number responses), n5 is the number of respondents for vary important, n4 is the number of respondents for important, n3 is the number of respondents for neither / nor important, n2 is the number of respondents for of less important and n1 is the number of respondents for of none important.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Data Presentation and Analysis

The purpose of this chapter is to analyze the research data collected, with a view to ensure easy reference and better understanding

Questionnaire Response

The total number of questionnaire distributed were two hundred (200), while the total number of questionnaire duely completed and returned were one hundred and sixty-five (165) which represent 83% of the entire questionnaire.

4.2 Data Analysis

The analysis of the data from the respondents is as shown below:

Table 4.1: Profession of Respondents

Respondent	Population	Percentage (%)
Architects	15	9.09
Quantity Surveyors	25	15.5
Engineers	55	33.3
Client	70	42.4
Total	**195**	**100**

Table 4.1 shows the profession of respondent, 9.09% of the respondents are Architect, 15.15 % of the respondents are Quantity surveyors, 33.33 % of the respondents are engineers and 42.43% of the respondents are clients.

Table 4.2: Academic Qualifications of Respondents

Profession	**Frequency**	**Percentage (%)**
PHD	10	6.06
M.SC	25	15.15
BSC/B.TECH	40	24.24
HND	56	33.94
ND	34	20.60
Total	**165**	**100**

Table 4.2 shows the academic qualification of respondent, 6.06 % of the respondents are PHD holders 15.15% of the respondents are M.SC, 24.24% of the respondents are Bsc/B.tech, 33.94% of the respondents are HND holders and 20.60% of the respondents are ND holders.

Table 4.3: Organization of Respondents

Organization	**Frequency**	**Percentage (%)**
Consulting	50	51.51
Contractor	85	30.31
Government	30	18.18
Total	**165**	**100**

Table 4.3 clearly indicates that 51.51% of the respondents belong to client organization, 30.31 % of the respondents are contractors while 18.18% of the respondents are government agencies.

Table 4.4: Professional Qualifications of Respondents

Qualification	**Frequency**	**Percentage (%)**
Fellow members	84	50.90
Corporate members	39	23.64
Probationer members	29	13.94
Others	19	11.52
Total	**165**	**100**

Table 4.4 shows Professional Qualification, 50.90% of the respondents are Fellow member, 23.64% of the respondents are corporate members, and 13.94% of the respondents are probationer members while 11.52% belong to other categories.

Table 4.5: Years of experience in the construction industry

Qualification	**Frequency**	**Percentage (%)**
1 – 5	70	42.42
6 – 10	40	24.24
11 – 15	25	15.15
16 – 20	20	12.12
Above 20	10	6.06
Total	**165**	**100**

Table 4.5 shows the respondent's years of experience in the construction industry, 42.42% of the respondents are 1-5, 24.24 % of the respondents has 6-10 years of experience, 15.15 % of the respondents are has 11-15 years of experience, 12.12% of the respondents has 16-20 years of experience and 6.06% of the respondents are above 20 years of experience.

Table 4.6: Challenges affecting timely delivering of construction projects

Identified challenges	**5**	**4**	**3**	**2**	**1**	**Total**	**Mean score**	**RII**	**Ranking**
Delay in permit by government	88	40	25	10	3	165	3.91	0.375	9
Contractor's project inexperience	65	48	36	15	1	165	3.17	0.507	5
Inadequate managerial skills	52	70	28	15	5	165	3.71	0.471	7
Poor site inspection	35	58	39	23	10	165	3.66	0.569	4
Deficiency of site workers	58	39	42	26	6	165	3.46	0.569	3
Shortage of construction materials	47	33	43	10	32	165	3.83	0.702	1
Project construction complexity	72	61	13	7	12	165	3.26	0.458	8
Poor planning and Forecast	28	66	40	27	4	165	3.20	0.500	6
Monetary / Funding problem	39	48	34	28	16	165	3.69	0.686	2

Table 4.6: Shows the factors and challenges hindering timely delivery of construction projects by contractors, the most significant of the factors includes: Shortage of construction materials with RII (0.702) ranked 1, Monetary/funding problems rank 2 with RII (0.686 and Deficiency of site workers ranked 3 with RII (0.569) others factors ranked from 4 -9 are less significant.

This shows that Shortage of construction materials, funding problem and deficiency of site workers are the three most significant factors affecting timely delivery of constructions project.

Table 4.7 shows the identified factors affecting contractors timely delivering of constructions projects

Identified factors	5	4	3	2	1	Total	Mean score	RII	Ranking
Contractors inexperience in handling the projects	39	35	58	13	20	165	4.00	0.569	5
Contractors poor managerial skills	58	42	26	39	6	165	3.88	0.569	4
Contractors inability to meet up with contract agreement	43	47	33	32	10	165	3.66	0.702	2
Staff inefficiency and performance	66	40	28	27	4	165	3.40	0.717	1
Sophisticated nature of the projects	48	36	65	9	7	165	3.22	0.507	6
Contractors inability to get the required materials for the projects	61	72	13	12	7	165	3.83	0.458	8
Contractors delay in dealing with neighbours whose building may obstruct projects progress	28	70	52	5	15	165	3.74	0.471	7
Contractors poor planning and forecasting	40	25	88	3	10	165	3.26	0.375	9
Contractors inability to replace damaged equipment crucial to projects completion	34	28	48	39	16	165	3.11	0.687	3

Table 4.7 shows the factors affecting contractors' timely delivery of construction projects, using the means score and Relative Importance index, Staff inefficiency and performance ranked 1 with RII (0.717) as the most significant factors affecting contractors timely delivering of constructions project, Contractors inability to meet up with contracts agreement ranked 2 with

RII (0.702) and Contractors inability to replace damaged equipment crucial to projects completion ranked 3 with RII (0.687) while other factors ranked 4 – 9 are less significant.

Table 4.8 Measures that could be adopted to mitigate the factors which hinder the timely delivery of construction projects.

Significance Identified measures	5	4	3	2	1	Total	Mean score	RII	Rank
Meeting up with contracts agreement	39	35	59	12	20	165	4.00	0.559	3
Disbursement of contract fund on time	60	40	26	39	1	165	3.88	0.550	4
Proper planning and forecasting	43	47	33	32	10	165	3.66	0.702	1
Hiring experience contractors to carry out construction projects	67	39	28	27	4	165	3.40	0.492	6
Government quick approval of construction projects	48	36	65	9	7	165	3.22	0.507	5
Using standard equipment in carrying out the projects	61	75	10	12	7	165	3.83	0.440	8
The use of skilled and experience staff	28	70	52	6	5	165	3.74	0.471	7
Adequate funding of the projects	40	25	88	3	10	165	3.26	0.375	9
Immediate replacement of faulty equipment	34	28	48	39	16	165	3.11	0.688	2

Table 4.8 shows the measures that could be adopted to mitigate the factors hindering timely delivery of constructions projects, using the Relative Importance Index (RII), the following measures are most significant, Proper planning and forecasting ranked 1 with RII (0.702), Immediate Replacement of faulty equipment ranked 2 with RII (0.688) and meeting up with contracts agreement ranked 3 with RII (0.599) and others measures are less significant ranking 4 – 9 respectively.

4.4 Discussion of Findings

From the analysis carried out to determine significant factors and challenges affecting contractor's timely delivery of construction projects, it was discovered that Shortage of construction materials with RII (0.702) ranked 1, Monetary/funding problems rank 2 with RII (0.686 and Deficiency of site workers ranked 3 with RII (0.569) others factors ranked from 4 -9 are less significant.

Using the means score and Relative Importance index, Staff inefficiency and performance ranked 1 with RII (0.717) as the most significant factors affecting contractors timely delivering of constructions project, Contractors inability to meet up with contracts agreement ranked 2 with RII (0.702) and Contractors inability to replace damaged equipment crucial to projects completion ranked 3 with RII (0.687).

It was discovered that proper planning and forecasting ranked 1 with RII (0.702), immediate replacement of faulty equipment ranked 2 with RII (0.688) and meeting up with contracts agreement ranked 3 with RII (0.599) are the most significant measures to be adopted to curtail the factors mitigating contractor's timely delivery of construction projects.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This study has assessed the causes of delay by contractors' timely delivery of construction projects in Nigeria. This chapter therefore summarizes the findings from analysis carried out in the previous chapter. Appropriate recommendations were also proposed to address the findings where necessary.

5.2 Conclusion

In summary, contractors delay in delivery of constructions projects has been majorly narrowed down to three basic factors which include Employers perspective, Contractors perspective and natural factors. Employers must deem it fits to meet up with contracts agreement and be willing to pay up necessary financial requirement to meet up with the project. Employers funding of projects has often result in delay in projects delivery.

Furthermore, contractors on the other hands should ensure all hands must be on deck to meet up with delivery date of project under execution, as this may hamper future projects that may be contracted to them. As it is often said, one good turn deserves another.

Although, the nature and complexity of the projects can actually affects the due dates of project delivery, factors such as machine failure, death of staff can also affect the delivery of projects.

Thus, Environmental hazards which can damage constructed parts of the roads resulting to repetition of work done and further causing damage in the project progress.

It is therefore of utmost important that proper planning be made in terms of finance, materials labour and equipment before embarking on a project.

5.2 Recommendations

Through the research, the following recommendations had been drawn in order to curtail the reasons delay in delivery of construction projects and also to encourage and promote quality and timely delivery of construction projects

1. An employer has to be financially viable before contracting a project out for construction and make provision for timely financial supply to ensure the projects are completed as a when due.
2. Employers should always be ready and willing to keep to contract agreement.
3. There should be provision for adequate materials and equipment and personnel,
4. Clients, builders and contractors should honour certificate of payment as at when due.
5. The selection processes and contractors should be characterized by proficiency, accountability, transparency, honesty and integrity and not on favouritism/tribalism.
6. The use of political undertone rather than economic advantage in sitting of projects should be discouraged.

References

Adelback, T., & Johansson, N. (2013). Success Factors in Large Infrastructure Projects: The contractor's perspective. Sweden: Chalmers University of Technology.

Amade, B. (2014). Containing Failure and Abandonment of Public Sector Construction Projects in Nigeria. A Seminar Paper of the Department of Project Management Technology, for a P.hD of the Federal University of Technology, Owerri, Nigeria, December, 2014. Pp 1-35..

Atkinson, R. (1996). Project management: Cost, time and quality, two best guesses and a phenomenon, it's time to accept other success criteria. *International Journal of Project Management,* 1999, 17 (6), pp. 337–342.

Alaghbari, W., (2017). Avoiding performance failure payment deductions in PFIIPPP projects: Model of critical success factors. *Journal of Performance of Constructed Facilities,* 27. 283.

Al-Kharashi, F. and Skitmore, I. (2012). Causes of construction delay: Traditional contracts. *International Journal of Project Management.* 20, 67-73.

Amade, B. (2014). Containing Failure and Abandonment of Public Sector Construction Projects in Nigeria. A Seminar Paper of the Department of Project Management Technology, for a P.hD of the Federal University of Technology, Owerri, Nigeria, December, 2014.

Brandon, K. (2007). Client versus contractor perspectives on project success criteria. *International Journal of Project Management,* 23,622-629.

Bryde, D. J. and Robinson, L. (2005). Client versus contractor perspectives on project success criteria. *International Journal of Project Management,* 23,622-629. .

Chan Albert P.C. and Chan Daniel W.M., (2004), Developing a benchmark model for project construction time performance in Hong Kong, Building and Environment, Vol. 39, PP. 339 – 349.

Cheung Sai On, Suen Henry C.H. and Cheung Kevin K.W., (2007), PPMS: a Web-based construction Project Performance Monitoring System, Automation in Construction, Vol. 13, PP. 361- 376.

Chua, D.K.H., Kog, Y.C. and Loh, P.K. (1999). Critical Success Factors for Different Project Objectives. *Journal of Construction Engineering and Management.* Vol. 125, No.3, pp 142- 150.

Dissanayaka, F. & Kumaraswamy, P. (2008). Client versus contractor perspectives on project success criteria. *International Journal of Project Management,* 23,622-629.

Ebhofemhen, H. (2002). A Web-based construction Project Performance Monitoring System, Automation in Construction, 13, 361-376.

Fung, O., and Tung, .I. (2006). Factors affecting cost performance: Evidence from Indian construction projects. *International Journal of uk.*

Egan, J. (1998). Rethinking construction. The report of the Construction Task Force on the scope for improving quality and efficiency in UK construction. Department of the Environment, Transport and the Regions, London. .

Iyer, K.C. and Jha, K.N. (2006). Factors affecting cost performance: Evidence from Indian construction projects. *International Journal of UK*

Holland, P., Light, B. and Gibson, N. (2009), "A critical success factors model for project resource planning implementation", Proceedings of the 7th European Conference on Information Systems, Vol, pp. 273-97

Koushki, U. and Kartam, I., (2004). A Study of Failure and Abandonment of Public Sector Driven Civil Engineering Projects in Nigeria: An Empirical Review. *American Journal of Scientific and Industrial Research.* 75-82.

Obuji, F. (2003). Large construction projects in developing countries: a case study from Vietnam. *International Journal of Project Management.* 22. 553-561.

Odeh, O. and Battaineh, K. (2002). Critical Success Factors for Different Project Objectives. *Journal of Construction Engineering and Management.* 125 (3), 142 – 150.

Odeh, Y., and Battaineh, L. (2002). Stakeholder perceptions of contractor time, cost and quality management on building project. Proceedings: CIB World Building Conference on Construction for Development. Cape Town, South Africa, 4-LS May.

Ogunlana, M. (2009). Constructing the Team. Final Report of the Government /Industry Review of Procurement and Contractual Arrangements in the UK Construction Industry.

Olapade, T., and Anthony, A. (2012). Success Factors in Large Infrastructure Projects: The contractor's perspective. Sweden: Chalmers University of Technology.

Oyedele, P. (2013). Developing a benchmark model for project construction time performance in Hong Kong, Building and Environment. 39, 339 – 349.

Pickavance, B. (2005). Project management: Cost, time and quality, two best guesses and a phenomenon, it's time to accept other success criteria. *International Journal of Project Management,* 17 (6), 337–342.

Popoola, O. (2011). Developing a benchmark model for project construction time performance in Hong Kong, Building and Environment.

Robert, A. and James, W. (2013). Environmental factors and work performance of protect managers in the construction industry. *International journal of Project Management.*

Sambasivan, T and Soon, R. (2007). PPMS: a Web-based construction Project Performance Monitoring System, Automation in Construction 13. 361- 376.

Sanders, W. & Eagles, L. (2017). Critical CONs of success in large-scale construction prospects: Evidence from Thailand construction industry. *International Journal of Project Management.* 26, 42G-430.

Toor, R. & Ogunlana, O. (2008). A Quantitative Assessment of the Cost and Time Impact of Variation Orders on Construction Projects. *Journal of Engineering. Design and Technology.* 5(I) 35-48.

Yamare, E. (1967). Cost, time and quality, two best guesses and a phenomenon, it's time to accept other success criteria. *International Journal of Project Management*, 1999, 17 (6), 337–342.

APPENDIX I

Quantity surveying Department,
School of Environmental Studies,
Auchi Polytechnic,
P.M.B. 13 Auchi.
Edo State

Dear Respondent,

REQUEST FOR COMPLETION OF QUESTIONNAIRE

I am a final year student of the above named institution currently carrying out a research on the topic "Assessment of Factors Affecting Timely Delivery of Construction Projects by Contractors in Edo State, Nigeria" The topic is chosen to identify the factors affecting timely delivery of construction projects in Nigeria and to proffers possible solutions.

Your assistance in completing this questionnaire is therefore needed so that the objectives of the research can be achieved. Information given will be treated confidentially and strictly used for academic purpose.

Thanks in anticipation.

Researcher

DAUDA ABDULAFEEZ
09061307931

QUESTIONNAIRE

SECTION A

General information of the respondent

Instruction: Please tick (√) and complete the questionnaire in the appropriate box that corresponds to your response.

1. Profession of Respondent: (A) Architect [ ] (B) Quantity surveyor [ ] (C) Builder [ ] (D) Engineer [ ] (E) Contractor [ ]
2. Educational Qualification of Respondent: (A) PHD [ ] (B) Msc [ ] (C) Bsc/B.tech [ ] (D) HND [ ] (E) ND [ ]
3. Type of Organization of Respondent: (A) Contracting [ ] (B) Government [ ] (C) Consulting [ ]
4. Years of Experience of Respondent: (A) 1-5 years [ ] (B) 6-10 years [ ] (C) 11-15 years [ ] (D) 16-20 years [ ] (E) above 21 years [ ]
5. Number of contracts handled by respondents: (A) 1-5 projects [ ] (B) 6-10 projects [ ] (C) 11-15 projects [ ] (D) 16-20 projects [ ] (E) above 20 [ ]
6. Professional qualification of respondents: Fellow Member [ ] Corporate member [ ] Probation [ ] Others [ ]

SECTION B

The following have been identified as the factors affecting timely Delivery of Construction projects by contractors. Kindly rank them by ticking ( ) the appropriate box based on the level of significance using a scale of 5 – 1 provided (5- most significant, 4 – very significant 3-significant 2-less significant 1-not significant

S/NO	Identified Factors affecting timely delivery of construction projects	Level of Significance				
		5	4	3	2	1
1.	Delay in permits by the governments					
2.	Contractors' project inexperience					
3.	Inadequate managerial skills					
4.	Poor planning and forecast					
5.	Inadequate technical personnel					
6.	Inadequacy of site inspection					
7.	Fraudulent practices					
8.	Deficiency of site workers					
9.	Inadequate equipments					
10.	Frequent collapse of equipments					
11.	Failure of equipments					
12.	Shortage of materials					
13.	Monetary problem					
14.	Inaccurate estimate					
15.	Inflation					
16.	Over design					
17.	Climate					
18.	Restricted sites					
19.	Project construction complexity					
20.	Problems with neighbours					

	OTHERS PLEASE SPECIFY					
21.						
22.						
23.						
24.						
25.						
26.						
27.						
28.						
29.						
30.						

SECTION C

The following have been identified as the factors affecting timely Delivery of Construction projects by contractors, Employer's perspective. Kindly rank them by ticking ( ) the appropriate box based on the degree of importance using a scale of 5 – 1 provided (5- Strongly Agreed, 4 – Agreed 3- Disagree 2- Strongly Disagreed 1-Undecided

S/NO	**Factors affecting timely delivery of construction projects by contractors: Contractors' perspective**	**Level of Significance**				
		5	4	3	2	1
1.	Contractors inexperience in handling the projects					
2.	Contractors poor managerial skills					
3.	Contractors inability to meet up with contract agreement					
4.	Staff inefficiency and performance					
5.	Sophisticated nature of the projects					

6.	Contractors inability to get the required materials for the projects					
7.	Contractors delay in dealing with neighbours whose building may obstruct projects progress					
8.	Contractors poor planning and forecasting					
9.	Contractors inability to replace damaged equipment crucial to projects completion					
10.	Contractors low staff strength and tools					
	Others Please Specify					
11.						
12.						
13.						
14.						
15.						

SECTION D

The following have been suggested as the measures that could be adopted to mitigate the factors which hinder timely delivery of projects. Kindly rank them by ticking ( ) the appropriate box based on the degree of importance using a scale of 5 – 1 provided (5- Strongly Agreed, 4 – Agreed 3- Disagree 2- Strongly Disagreed 1-Undecided.

S/NO	**The measures that could be adopted to mitigate the factors which hinder timely delivery of projects**	**Level of Significance**				
		5	4	3	2	1
1.	Meeting up with contracts agreement					
2.	Disbursement of contract fund on time					

3.	Proper planning and forecasting					
4.	Hiring experience contractors to carry out construction projects					
5.	Government quick approval of construction projects					
6.	Using standard equipment in carrying out the projects					
7.	The use of skilled and experience staff					
8.	Adequate funding of the projects					
9.	Immediate replacement of faulty equipments					
10.	Meeting up with contracts agreement					
	Others please Specify					
11.						
12.						
13.						
14.						
15.						