Assessment Of Contract Planning Techniques On Construction Project Delivery In Edo State

AN ESSAY TO BE SUBMITTED TO THE DEPARTMENT OF QUANTITY SURVEYING, AUCHI POLYTECHNIC, AUCHI IN PARTIAL REQUIREMENT FOR THE AWARD OF HIGHER NATIONAL DIPLOMA IN QUANTITY SURVEYING

BY

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CERTIFICATION

This is to certify that this work Assessment Of Contract Planning Techniques On Construction Project Delivery In Edo State was undertaken by OPARA NAOMI in the Department Of Quantity Surveying, Auchi Polytechnic, Auchi .

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All thanks and honor goes to God Almighty for his infinite love and mercy over my life throughout my HND programme.

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May the good Lord continue to strengthen and give him grace to standout and finish strong, Amen.

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This acknowledgement will be incomplete without mentioning my family, loved ones and friends, Mr Charles Opara, Mr Finbar Irosowe and all that contributed to the achievement of my programme kudos to you all, God in his infinite mercy will reward you all.

DEDICATION

This project work is dedicated to God Almighty for his love, protection and most of all wisdom for the successful completion of my HND programme. Also, this project work is dedicated to my dad Mr. Charles Opara.

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ABSTRACT

Project planning is an integral content in the management and execution of construction projects. However, it is challenging to implement and properly keep these plans to work. The study study is conducted to evaluate the effect of contract planning practice on construction project performance. It takes logical attempts and procedure to analyses the perceptions of respondents on these effects. This study adopted questionnaire survey to gather Identify the contract planning practices used in the Nigerian construction industry from professionals working in construction firms in Edo state. A total of 140 respondents selected through random sampling techniques participated in the survey. Ranking analysis of Contract Planning Techniques Used In Construction Industry using mean item score showed show contract planning techniques used in construction Industry the top four Techniques includes reveals that Bar chart, Work break-down, Resource planning, Cost breakdown scheduling. The study also revealed statistically significant difference in the perceptions of the respondents to some of the factors when classified into different groups. The study also Time needed to rectify defects, Size of the project, Cost of rework, Project design cost, Professional expertise, Time availability, Type of the project, Type of client, Procurement method, Quality of equipment and raw materials, Unavailability of competent staffs, Waste rate of materials, Profit rate of project, Project budget, Quality assessment system in organization, Conformance to specification weighted as factors affecting construction project practice. The respondents were further asked to rank the barriers to effective project planning based on time, cost and quality. The respondents ranked disputes as the highest barrier to effective project planning based on time, too many variations was ranked highest based on cost, and Technical incompetence was ranked highest based on quality. The respondents study further recommended In the competitive selection of consultants for a contract or group of contracts, previous working experience with client should always be among factors given high attention, In order to minimize delay in the honoring of payment certificates after they have been issued, the number of persons involved in the process of checking and endorsing them should be reduced; only those who would be held responsible in the event of wrong payment should be involved, Human resources in the construction industry should therefore be developed through proper and, Continuous training programs about construction projects performance, Proper planning is not an extravagance but rather a basic need, but it is not enough to plan, implementation of the plans is the key to ensure project success, Therefore, contract planning practice on construction project performance in Edo state have been identified in this study, the knowledge of these factors will assist construction stakeholders in re-evaluating their contract planning technique's and methods in order to enhance them and in this manner enhance the performance of their construction projects.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Contract planning according to Simmons (2007), refers to the process of systematically and efficiently managing contract creation, execution and analysis for maximizing operational and financial performance and minimizing risk. Constructive construction planning and schedules should be put in place ahead of time to enhance successful projects delivery. Newtown Square (2013)' Ashworth, Hogg, and Higgs (2013) described the construction industry as one of the most important sectors of the economy, which integrates a wide variety of skilled and unskilled professionals.

These professionals engage in the provision of goods and services ranging from construction, alteration, refurbishment to repairs of building and civil engineering structures. All these professionals work together under various types of contractual agreements to actualize the client's brief and deliver the project. Each construction project is unique and has its main objectives are outlined by the client based on project circumstances. Amongst the most common objectives of any successful project are deliveries at the right time, within authorized cost and meeting the envisaged quality standards. Construction projects, like all others, are not risks free and thereby can result to financial loss. Construction risks are events that generally influence any or all of the project objectives. Risk events could either be positive in terms of opportunities or negative in terms of threats to either or the entire project objectives (Hillson 2002).

Most considered factors hindering project performance in the construction industry are traceable to actions and inaction of principal stakeholders in the sectors.

Contract planning processes are the activities/steps taken during contract planning, this is divided into two (2) phases PMT (2006) which are the pre-contract planning and post-contract planning on clients perspective and contractors perspective, but in the cause of this project we will be looking at the clients perspective, The research literatures in construction project management is replete with concerns about poor or ineffective contract planning (Idoro, 2009; Idoro, 2012; & Dalibi, 2016). Most countries in the Middle-East and some part of Africa do not utilize project planning and management techniques in the delivery of construction projects (Sayegh, 2008; Laryea & Hughes, 2009). Ashworth (2007) reported that the use of formal contract planning and management techniques in the UK construction industry is low. The result culminates in project failures, incessant claims for variations, huge financial losses and sometimes results in bankruptcy of Clients and Contractors Ashworth (2007).

Several school of thought have been developed in the field of effective contract planning and management within construction contexts. The degree of application of contract planning and management techniques by contractors especially, was found to differ in various construction industries across the globe. Against this literature gap therefore, this study is conducted to evaluate the effect of contract planning practice on construction project performance.

1.2 Statement of the research problem

Contract planning in construction projects is known with recurrent incapacity that influence the performance of project delivery. These long lasting outcomes are a result of two possible concern, low awareness and usage, and exogenous and endogenous factors influencing contract

planning. Ashworth (2007) reported that the use of formal contract planning and management techniques in the UK construction industry is low. The result culminates in project failures, incessant claims for variations, huge financial losses and sometimes results in bankruptcy of Contractors Ashworth (2007). This situation is more prevalent in redevelopment projects due to the inevitable problems of unexpected additional work, excessive requirements and scope management issues, project funding not aligned with project plans, delay, structural failure, cost overrun. (Naaranoja & Uden, 2007). These problems or uncertainties, among others, increase the project risk and make their management crucial if success is desired. Several projects in the housing and road sub-sectors across Nigeria have witnessed huge investment of public and private funds without commensurate result expended. This huge expenditure and apparent failure in the primary objectives of the project led to complaints, probe panels and subsequent abandonment of the project.

A successful project is a project that has been completed on schedule, within budget, scope and satisfied the required quality (Allan 2004; Hatush & Skitmore Doloi 2007). Construction industry projects involve complex packages of work, for which design and contracting organizations are responsible; the product is generally large, discrete and prototypical (Abeyasinghe et al. 2001). In particular, the high number of internal and external stakeholders changing from project to project, the high consumption of a heterogeneous mix of different materials, equipment and labour, as well as the production environment which changes from project to project due to the on-site character of construction leads to constantly changing project planning problems.

Projects that do not deliver the required value they promise and of course do not realize their original objectives are all failed projects, in other words for a project to fail one or all of these

component time, cost and quality have failed (Frank 2011). And all this, are due to little or no contract planning.

1.3 Research Questions

i. What are the contract planning practices used in the Nigerian construction industry?

Ii. What are the factors affecting construction project performance?

iii. What are the factors affecting contract planning practices on construction projects?

1.4 Aim and Objectives of the Study

The aim of the study is to investigate the effects of contract planning on construction project performance. The specific objectives are to:

i. Identify the contract planning practices used in the Nigerian construction industry.

ii. Identify factors affecting construction project performance.

iii. Identify the factors affecting contract planning practices in the Nigerian construction industry

1.5 justification of the study

A successful project is a project that has been completed on schedule, within budget, scope and satisfied the required quality (Allan 2004; Hatush & Skitmore Doloi 2007). Construction industry projects involve complex packages of work, for which design and contracting organizations are responsible; the product is generally large, discrete and prototypical (Abeyasinghe et al. 2001). In the same vain. So many researchers have carried out researches on Assessment of contract planning practice on construction project performance. Such as. Cullen,

Scott W, (2016), carried out a project in contracted planning practices in the United State of America, and the study showed that lack of proper planning of construction projects are the cause of major hindrances to the performance of construction projects.

Oladimeji & Ojo (2012) carried out a research and found out that Nigeria is experiencing poor project outcome due to non-adoption of project management techniques, management incapacity and the inability to plan projects adequately according to contractual requirements. In view of the above researches, the study sought to examine contract planning practice on construction project performance of various construction projects in Nigeria, specifically in Edo State. This study will give insights to understanding the importance of contract planning practice on construction project performance. It will also have some contribution to the formulation of appropriate policies relating to the performance of construction projects. These policies will help the concerned bodies dealing with construction projects such as Nigeria National Roads Authority, Ministry of Works and Transport, Local Government construction committees at the area and private organizations to focus on the need of contract planning, and giving attention to the observed problems. In addition to this, the policies may facilitate further studies in the field of contract planning. The information obtained during the study will ultimately add, to the existing body of knowledge to pave way for further research in the field of contract planning and performance in academia.

1.6 Scope of the study

The study is carried out to assess contract planning practice on construction project performance in Edo state. A total number of thirty (30) construction projects where covered in this research.

The target population include: Architects, Civil Engineers, Quantity Surveyors, Estate Managers, Builders and clients

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

Planning is a fundamental tool in construction project used in meeting project scope, time and cost (Igwe & Ude, 2018; O Passenheim, 2009). Ubani, Nwachukwu, and Nwokonkwo (2010) defined planning as activities and performance milestones that relate to actions, time and cost targets which will result in successful project objectives. Inuwa, Wanyona, and Diang'a (2014) opined that contractors have embraced project planning in developed countries which resulted in a well-planned and controlled contract that impacted positively on performance and profitability of such contractors but (Ubani et al., 2010) observed that contractors in a developing country like Nigeria are vulnerable to losses because of the inability to plan or having defective plans and inefficient management. El-Sayegh & Mansour (2015) also opined that most developing countries in Africa do not utilized project planning techniques in the delivery of construction projects.

Oladimeji & Ojo (2012) buttressed this fact that Nigeria is experiencing poor project outcome due to non-adoption of project management techniques, management incapacity and the inability to plan projects adequately according to contractual requirements. Frimpong, Oluwoye, &

Crawford (2003) observed that most contractors are in the business of making money at the expense of good management and consequently, they pay low wages, submit very low bids and have very little ability to plan and coordinate contracts. Kartam & Kartam (2001) however attributed the low usage of planning techniques to subjective judgment and contractor's reliance on their experience and intuition. Over-reliance on traditional management approach has resulted in poor project planning and low productivity (Ekundayo, Jewell, & Awodele, 2013; Inuwa et al., 2014) and these have compounded the inability of contractors to deliver projects within the time frame and at the estimated cost which leads to loss of profit as a result of inadequate project planning. This has made the under performance of the industry to remain unresolved (Dosumu, Idoro, & Onukwube, (2017) which calls for continuous improvement. Thus, this study aims at assessing contract planning practices on construction project performance.

2.2 The Construction Industry

The construction industry is considered one of the oldest industries organized on a project basis (Gollenbeck, 2009). Well known examples are the Egyptian pyramids (3rd millennium B.C.) and the aqueducts carrying water to cities and industrial sites that were constructed in Rome in 312 B.C. (Gollenbeck, 2009). One thing that is common to all these historic structures is the use of both human and material resources which are planned, organized, coordinated and controlled for the sole aim of realizing the projects. It also involves a complex structure of different trades and professionals working in harmony towards the realization of the projects.

The construction industry is of strategic importance to any nation due to the role it plays in the economy (Gollenbeck, 2009; Jinadu, 2007). It is responsible for the provision of infrastructure and contributes to a country's gross domestic product (Dada, 2012). The industry worldwide

accounts for a sizeable proportion of a nation's economic activities and globally accounts for about 10% of the world economy (Adindu, 2012; Freeman, 2011). Approximately 70% of construction investment is accounted for in the USA, Western Europe, and Japan. The continent of Africa accounts for about 1%. Per capita investment in construction in the developed world is approximately $2 500 per annum as against $46 per annum in Africa (Freeman, 2011, p.14).

The low level of construction investment in Africa and lack of human capital potential has created a huge infrastructural deficit and this account for the low socio economic growth of the continent. The industry can be used for the socio economic development of developing economies (Hamilton, 2006). This is because of its unique ability to facilitate development of a nation by providing directly for human needs, stimulating investment, and generating employment (Hamilton, 2006). Hence, the construction industry is a sector that can assist the African continent to develop its economy as well as provide employment opportunity to its teeming population.

2.3 The Theory of Performance

The Theory of Performance develops and relates six foundational concepts to form a framework that can be used to explain performance as well as performance improvements (Don, 2010). To perform is to produce valued results. A performer can be an individual or a group of people engaging in a collaborative effort. Developing performance is a journey, and level of performance describes location in the journey. Current level of performance depends holistically on 6 components: context, level of knowledge, levels of skills, level of identity, personal factors, and fixed factors. Three axioms are proposed for effective performance improvements. These involve a performer's mindset, immersion in an enriching environment, and engagement in

reflective practice. Performance advancing through levels where the labels “Level 1,” “Level 2,” etc. are used to characterize effectiveness of performance. That is, a person or organization at Level 3 is performing better than a person or organization at Level 2. Performing at a higher level produces results that can be classified into categories:

i. quality increases; results or products are more effective in meeting or exceeding the expectations of stakeholders; amount of waste goes down,
ii. capability increases; ability to tackle more challenging performances or projects increases,
iii. capacity increases; ability to generate more throughput increases,
iv. knowledge increases ; depth and breadth of knowledge increases,
v. skills increase; abilities to set goals persist, maintain a positive outlook, etc. increase in breadth of application and in effectiveness and
vi. identity and motivation increases; individuals develop more sense of who they are as professionals; organizations develop their essences.

2.4 Construction Projects and Performance

Project success is almost the ultimate goal for every project. Success of construction projects depends mainly on success of performance. Many previous researches had been studied on performance of construction projects. Dissanayaka and Kumaraswamy (1999) remarked that one of the principle reasons for the construction industry's poor performance has been attributed to the inappropriateness of the chosen procurement system. Thomas (2002) identified the main performance criteria of construction projects as financial stability, progress of work, standard of quality, health and safety, resources, relationship with clients, relationship with consultants,

management capabilities, claim and contractual disputes, relationship with subcontractors, reputation and amount of subcontracting. Chan and Kumaraswamy (2002) stated that construction time is increasingly important because it often serves as a crucial benchmarking for assessing the performance of a project and the efficiency of the project organization.

2.5 Contract Planning and Performance of Construction Projects

According to Ariet and Shuli (2015), contract planning appropriately determine project costs; ensures adequate market research and business needs; clearly define the brief in physical, financial and functional terms including service needs and objectives; allow sufficient time for project definition, design and documentation; involve potential users, maintainers and constructors in determining design; attempt to identify potential construction difficulties and make due allowance for them in determining the construction period. From the review, Ariet and Shuli (2015), the function of project planning is seen ideal and relevant in meeting the project needs and ensuring the contractor does the right work, however, they do not look at planning as a means of avoiding difficulties, associated with project performance. This is however vital for the different stakeholders and was explored in this current study.

In addition Hammad (2015) reveals that contract planning also determines and clearly conveys the project time and cost objectives and quality standards to be met, undertake robust project feasibility evaluation; select the procurement strategy best suited to their needs and identify a clear project implementation and procurement strategy. All these are fundamental in ensuring that the contract manager and other stakeholders pursue vibrant project stages with defined outcomes and timings which results into performance effectiveness. On the contrary, this may not be achieved when the planning is haphazardly done.

2.6 Contract Controls and Performance of Construction Projects

The rationale for control in project management stems from existence of many malpractices exposed in past corruption cases includes manipulation in sampling of materials for testing, substitution of test samples, falsification of test reports, and false or selective reporting of field tests, among others (Rahaman, 2012). Thus taking on project controls is one way of ascertaining that the above operations risk do not occur or are minimal to insignificant magnitude. While Rahaman (2012) notes that contract controls are necessary to avert malpractice, however does not assess how clients, consultants, user department and funders can avert this and the degree of effect on project performance, and yet it was vital for successful project performance.

Research findings (Loo et al. 2006), agree that to improve time and cost performance of the construction projects; the contracts manager must ensure, proper planning works, commitment leadership and management, effective communication through regular meetings, use of skilled workers, close project monitoring; Training and development of workers, focus on quality, cost and delivery of the project. It can be noted that studies cited have paid a deeper analysis on the aspect of contract management in terms of value addition and quality control, and their focus is on companies outside Uganda. This current study paid attention to the contract cost control drawing reference to UPPET/APL1 phase 2 project in Uganda.

From the perspective of Yakubu (2010), controls are seen as watchdog for projects in finances, time management and also in payments, however, Yakubu could not establish significance of effect of contract controls on project performance in Uganda in consideration of client, consultant, funder and user department' input, hence this study was timely and relevant. More so,

Jha and Iyer (2006) emphasizes the aspect of professionalism in contract work by ensuring adherence to quality in materials used specification and structure.

2.7 Contract Monitoring, Evaluations & Performance of Construction Project

According Ballard & Howell (2011), Monitoring and Evaluation (M&E) is one of the core activities each manager should give consideration. Among the project characteristics that should be included in all contractual arrangements and which project participants should give attention is monitoring and control of a project during contract management. Project interim monitoring and evaluation is a paramount issue which can subsequently result into successful project performance. This study however focused on how monitoring and evaluation affects projects performance which is not well addressed in the study of Ballard & Howell's publication.

According to Ballard & Howell (2011), the long term effectiveness of the project especially when it is done phase by phase is based on the monitoring done. The essence with which the project controllers and implementers focus on the applicability of the different materials as and when they are used, determine how the long-term indicators can be realized and measured. Therefore, it is convenient to judge success of the project by whether the project management criteria than project criteria and this detail was examined in this current study

2.8 Measurement of Project Performance

The purpose of performance measurement is to help organizations understand how decision-making processes or practices led to success or failure in the past and how that understanding can lead to future improvements. Tangen (2004) obtained that performance measurement is a complex issue that normally incorporates at least three different disciplines: economics, management and accounting. Measurement of performance has garnered significant interest

recently among both academics and practitioners. Lehtonen (2001) stated that performance measurement systems are imminent in the construction firms. Karim and Marosszeky (1999) stated that performance measurement systems have been one of the primary tools used by the manufacturing sector for business process re-engineering in order to monitor the outcomes and effectiveness of implementation. Navon (2005) defined performance measurement as a comparison between the desired and the actual performances. He also stated that performance measurement is needed not only to control current projects but also to update the historic database. Such updates enable better planning of future projects in terms of costs, schedules, labor allocation, etc.

Karim and Marosszeky (1999) defined the purpose of key performance indicators as to enable a comparison between different projects and enterprises to identify the existence of particular patterns. They used different representation values to evaluate time and cost performance such as project characteristics, procurement system, project team performance, client representation's characteristics, contractor characteristics, design team characteristics, external condition. Samson and Lema (2002) remarked that characteristics of emerging performance measurement indicators need analysis of both the organization and environment such as: nature of work, global competition, quality awards, organizational role, external demands and power of IT. The indicators should be able to identify causes of problems, address all possible performance drivers, and identify potential opportunities for improvement. Cheung et al (2004) remarked seven main key indicators for performance which are: time, cost, quality, client satisfaction, client changes, business performance, and safety and health.

Pheng and Chuan (2006) stated that project performance can be determined by two common sets of indicators. The first set is related to the owner, users, stakeholders and the general public

which are the groups of people who will look at project performance from the macro viewpoint. The second are the developer, a non-operator, and the contractor which are the groups of people who will look at project performance from the micro viewpoint. Ugwu and Haupt (2007) developed and validated Key performance indicators for sustainability appraisal using South Africa as a case study. It is used four main levels in a questionnaire to identify the relative importance of Key performance indicators. The main indicators were: economy, environment, society, resource utilization, health and safety and project management and administration. Luu et al (2007) provided nine Key performance indicators which can be applied to measure project management performance and evaluate potential contractors as well as their capacity by requesting these indices.

2.9 Problem of Performance in Construction Industry

The failure of any construction project is mainly related to the problems and failure in performance. Moreover, there are many reasons and factors which attribute to such problem. Long (2004) stated that the construction industry performance problems in developing economies can be classified in three layers: problems of shortages or inadequacies in industry infrastructure (mainly supply of resources), problems caused by clients and consultants, and problems caused by contractor incompetence/inadequacies. Okuwoga (1998) identified that the performance problem is related to poor budgetary and time control. Long et al (2004) remarked that performance problems arise in large construction projects due to many reasons such as: incompetent designers/contractors, poor estimation and change management, social and technological issues, site related issues and improper techniques and tools. Navon (2005) stated that the main performance problem can be divided into two groups:

i. unrealistic target setting (i.e., planning) or

ii. Causes originating from the actual construction (in many cases, the causes for deviation originate from sources).

2. 10 **Factors Affecting the Construction Project Performance**

Many previous researches had studied the performance of construction projects. A typical construction project undergoes three stages; pre-construction, construction and post construction stages. Along these stages, there are numerous activities performed to achieve the output and objectives specified by the owner. Therefore, it is crucial for the construction project team, at some extent, to measure its performance on the activities or sub processes performed throughout the construction project, Love (2002). Performance of a project can be considered as a result of the process as well as the presence of the process. Dissanayaka and Kumaraswamy

(1999) remarked that one of the principle reasons for the construction industry's poor performance has been attributed to the inappropriateness of the chosen procurement system. The main performance criteria of construction projects as financial stability, progress of work, standard of quality, health and safety, resources, relationship with clients, relationship with consultants, claim and contractual disputes, relationship with subcontractors, reputation and amount of subcontracting.

Chan and Kumaraswamy (2002) stated that construction time is increasingly important because it often serves as a crucial benchmarking for assessing the performance of a project and the

efficiency of the project organization. Chan and Kumaraswamy (2002) identified project performance categories such as people, cost, time, quality, safety and health, environment, client satisfaction, and communication and a control system is an important element to identify factors affecting construction project effort. For each of the project goals, one or more Project Performance Indicators (PPI) is needed; both Early Contractor Involvement (ECI) and Early Supplier Involvement (ESI) would minimize constructability-related performance problems including costs associated with delays, claims, wastages and rework, etc. It is obtained by Stewart (1967) that human factors played an important role in determining the performance of a project. The most important practices relating to scope management as obtained by are controlling the quality of the contract document, quality of response to perceived variations and extent of changes to the contract.

2.10**.1 Cost Factors**

This has traditionally been seen as one of the most important areas – if the economy of the project is off, the project can seldom be seen as a success. Overall project cost, i.e. the overall cost that a project incurs from inception to completion, is of major interest as it shows the resource usage in economic terms. Another important aspect regards cost predictability, that is, whether the final overall cost is in line with the initial cost estimate.

Cost overruns can be a source for problems for an otherwise successful project as contractors are criticized for the common occurrence of cost overruns (sometimes labelled cost growth) in construction project, (Chan and Chan, 2004). This cost factors can be seen in areas such as; profit rate of project, project design cost, waste rate of material, cost of variation orders, and cost of rework (Alarcon and Ashley, 1999; Love et al., 2005).

2.10.2 Time Factors

The increasing importance of time in our globalized society has affected the construction industry in form of shortened project schedules. Project duration is simply the number of days/weeks/months from start to completion of the project. Since time can be a critical issue for many clients, project duration is often of prime interest. However, schedule overruns may be an even more important issue. Completing projects in a predictable manner on time (within schedule) is an important indicator of project success and the construction industry is frequently criticized for project delays (Chan and Kumaraswamy, 1996). Schedule overruns (sometimes labeled time growth) are often very negative since they hinder the client to start using the end product as planned. This time factors can be seen in areas such as; planned time for completion, average delay in regular payments, time needed to rectify defects (Choudhury and Phatak, 2004; Aibinu and Odeyinka, 2006; Assaf and Al-Hejji, 2006).

2.10.3 Quality Factors

Satisfactory time and cost performance is of little value if the project delivers inferior quality. The concept of quality is closely related to customer satisfaction, which has gradually been elevated in importance in the construction industry (Latham, 2004). According to Forsythe (2007), customer satisfaction is commonly described as a comparison between the customer's pre purchase expectations and their post-purchase perceptions.

2.11 Planning in the Construction Industry

Every project is unique on her own with predetermined commencement and delivery dates including prepared Bill of Quantities i.e. strict budget. The physical construction of a Four-bedroom apartment does not qualify it as a project except the added constraints of quality, time

and cost with the concerted efforts by the client/project manager re-allocating adequate and timely resources to keep within those constraints that truly distinguished it as a project (Ogunsemi & Jagboro 2006).. The constraints imposed on the project make it necessary to plan its execution so as to keep it within those constraints. The checks and balances put in place in the construction industry to facilitate the completion of projects within contractor's schedule and to the client's desired time, quality and cost as planning techniques are applied in varying degrees depending on the stage at which it is carried out (Ogunsemi & Jagboro 2006). As planning is one of the most important five managerial functions that need to be exercised to achieve the set objectives of any company, other four managerial functions include organizing, co-coordinating, motivating and controlling. Planning is not only the most basic of all the managerial functions above, but it determines how the four other functions will be implemented. As a result, planning plays a pivotal role in which managerial decision making process seats (Fayol 2016).

According to Hendrickson & Au (2019), Contract planning is a "fundamental and challenging activity in the management and execution of construction projects which involves the choice of technology, the definition of work tasks, the estimation of required resources and the duration of individual tasks, and the identification of any interaction among the different work tasks". Planning as defined by Al-jibouri (2002) is "determining what the organization's position and the situation should be at sometimes in future and deciding how best to bring that situation to fulfillment". Project Planning is more than estimating time and cost, it is a question of preparing schedules and charts, it is primarily a management function that creates a framework of agreement on who supplies what, to whom, where and when (Hensey 1993). Hensey (1993) further argued that planning is not a secondary function performed by computers or specialized planners. It is a vital activity to be carried out at all levels of the project organization. Planning

proceeds all other managerial functions and it is acclaimed as the most important of them all in any organization enterprise, or establishment. Wonder that the saying goes that: “No man plans to fail but man fails to plan”. Construction planning involves proper management of the available construction planning tools as they have an effect on the time and delivery. Planning, therefore, perm its, harmony within an establishment. Furthermore, it aids control which is necessary to ensure that resources are allocated and utilized prudently to make individual and groups perform to achieve maximally the stated goals and objectives. It states what are to be accomplished and controlled systems are created and developed to evaluate how plans are progressing (Sundaraj 2013).

2.12 Planning in construction projects

Planning seeks to calculate what risks that may occur in the project and how to deal with them during the project lifetime. Idoro (2010) opined that planning is a process that is continuous throughout the delivery of a project which can be classified according to the project delivery stage. According to Inuwa et al. (2014), there are four variables that should be taken into consideration when managing a project: time, cost, quality and scope. Even if a project is on schedule the costs can be higher than expected. In the construction industry planning is a complex and challenging task and there is an increasing need for a more comprehensive view in the projects (Abbas, Din, & Farooqui, 2016).

2.13 Level of Planning

There are two main levels of planning associated with construction projects which are; strategic and operational planning (Inuwa et al., 2014). Strategic Planning is associated with establishing organizational context, determining a desired future state and mechanisms by which the

organizational objectives may be reached. There is considerable evidence to suggest that engaging in strategic planning improves firm profit level (Al-Khrabsheh, 2018), hence it is crucial to the success of firms operating in a competitive environment. Strategic planning is multi-dimensional and complex process wherein the potential to incorporate related fields of strategic management dimensions such as strategic decision making, organizational type as well as characteristics of the strategic planning process which include formality, participation, flow and time horizon (Cassol, Lorandi, Carvalho, Cintra, & Ribeiro, 2019; Mintzberg & Laasch, 2020; Shimada, Ang Soo-Keng, & Ee, 2019). The Operational Planning is at the post-contract stage of a project and refers to any activities or tasks a contractor is expected to accomplish in his contractual obligation using any type of construction planning techniques (Bansal & Gupta, 2019).

2.14 Construction Planning Techniques

The common project planning techniques are Bar Charts, Line of Balance (LOB), Critical Path Method (CPM), Resource planning, Programme Evaluation & Review Techniques (PERT) and Precedence network method (Bala et al., 2018; Ekundayo et al., 2013; Idoro, 2010; Inuwa et al., 2014). The Critical Path Method (CPM) was developed in 1960 by the DuPont Corporation in order to allow the program of maintenance work during a chemical plant shut-down (Ray, Craven, Wallace, & Roberts, 2019). The CPM calculates the minimum completion time for a project, along with the possible start and finish times for the project activities. The method was originally developed for computer-aided planning, and an advantage is that changes in duration or costs are obtainable in real-time (Umoh, 2016). Resource Planning is mainly about making the most out of what is disposable (Simon, 2018). Resources may refer to human labour, but also to machinery, tools, materials, equipment etc. If the rate of production is proportional to the use of

resources, the costs for an activity will be the same, no matter if an activity is finished in less time with more resources or in a long time with fewer resources which all have an impact on the profit level of a contractor. Handigund and Bhavikatti (2019) opine that the Bar chart is very easy to understand and were first developed by Henry Gannt which concentrates on the position of identification of sequence. The technique is suitable for strict operational sequencing and permits a high degree of control (Handigund & Bhavikatti, 2019; Krishnamurthy & Ravindra, 2010).

Program Evaluation and Review Technique (PERT) was developed by the US Navy in 1960 as a way to put boundaries around overall project durations (Sackey & Kim, 2019). Unlike the Critical Path Method (CPM) model, which uses deterministic durations, the PERT approach uses a three-point time estimate, which considers the uncertainties of the activity durations. Aribisala, Otenaike, Balogun, and Ofusori (2017) observed that the objective of the PERT model was to assist a project manager to identify bottlenecks and overruns in the project before they happen so that corrective actions can be taken before it is too late to effect any change while network diagram (also called as a network topology) is used for allowing a user to grasp a configuration of a system that individual information processing devices are connected to each other by a network (Okano, Iizawa, & Morimoto, 2019). Specifically, in the network diagram, the overall image of a network is expressed by rendering devices as nodes and networks as links. The network diagram is generally regarded as an excellent diagram, because the network diagram can visualize individual connections between nodes.

2.15 Effect of Planning on Project Delivery

Working out a construction plan is a critical task when it comes to management of construction project as it determines the layout of how the construction project will be executed within the scheduled period of time to ensure cost and expenses is not exceeded while maintaining the specified quality.

The inability of the contractor to complete the aforementioned works at any stage prior to practical delivery can be classified or categorized as an abandoned project. Sundaraj (2013) analyzed and described the abandoned project as the one that was once initiated, but on which construction work for one reason or the other stopped mostly as a result of improper planning or absence of planning. Resumption of work on such a project may almost be nil. In addition, further categorized abandoned projects into two, viz: partial and complete abandonment. Suspended project or partial abandonment are those projects on which work was once in progress, but because of certain considerations, work had to stop for some time and after a while, it will pick up again. Projects of this nature in this category are classified as partially abandoned. They are not completely abandoned, but rather are undergoing some financial metamorphosis or adjustment programs to meet up with the realities of time before they commence again. Secondly, the complete or totally abandoned projects in the 2nd category had progress in the site formerly but had to stop completely, not to resume again because of certain factor(s) and consideration(s). Both categories of project abandonment have a common economic trait of wastage both to the clients and the contractor executing the project. Such wastage comes in form of cost and time overrun. With project planning, utilization of administrations, hierarchical strategies, inside operations and new items can be devised (Naeem, Khanzada, Mubashir & Sohail, 2018).

Construction Industry in Nigeria: The Nigerian construction industry contributes between 3.05% and 3.12% to the GDP (Khosa, 2001; Ogunsemi, 2015). This makes the construction industry as a vital element of the economy. It also has a significant effect on the efficiency and productivity of other industrial sectors (Bala, Randhawa, Kaur, Saili, & Chitkara, 2018). The Nigerian construction industry is largely dominated by international firms (Arijeloye, 2017), therefore, the local content bill for construction services was passed in April 2014 in order to give indigenous construction companies a level playing field as their international counterparts, as well as, making it easier for local businesses to thrive in the industry (Ogunsemi, 2015).

2.16 Project Planning Challenges

The major blame for poor project performance of a structure, according to Idoro and Akande-Subar (2008), should be borne by contractors because they are directly responsible for its production. However, this is not always so; other factors hinder the performance of indigenous contractors in Nigeria (Aniekwu & Audu, 2010; Bala et al. 2009; Achuenu, et al. 2000; Adams, 1997). According to Adams (1997) challenges on contractors' performance emanates from the business environment, the client, or his representatives, and from contractors deficiencies. Within these three sub-classifications, Adams (1997) identified 26 factors, amongst which are: uncertainties in supplies and prices of materials, obtaining interim payments, access to capital, access to plant and equipment, company organization, shortage of skilled labour, incomplete contract documentation, inadequate communication with client and representatives, design changes, inadequate project planning and site management, contract disputes, inadequate technical know-how, poor meeting of contract deadlines, and corruption.

Bala et al. (2009) categorized challenges faced in planning into government and firm-related ones. Government-related challenges, are problems created either directly or indirectly by the government and this has a significant impact on the development of the industry. The most severe of these problems are: an unfavorable business environment, a weak economy, corruption, lack of government patronage and patronage of foreign firms (Bala et al. 2009).

Firm-related challenges are problems internal to the firm and within the firm's control. These problems Bala et al., stressed, can inhibit the firms from developing core-capabilities from firm-specific resources. The most severe are: lack of vision, lack of entrepreneurial skills, limited technical expertise, limited plant and equipment, limited managerial expertise, limited trained manpower and inadequacy of local materials, among other problems (Bala et al. 2009).

Other challenges that contractors face in project planning are: non-availability of materials due to shortage or late delivery; plant, equipment and machine breakdown; change in demand, designs and rush orders; absenteeism of workers; and lack of communication between various functional areas of business (Teslang, 2004 cited in Ubani, et al. 2010). The fast changing environment, according to Chitkara (2012), also impose numerous time, cost and financial, legal, ethical, environmental, and logical constraints to projects.

Moreover, inferences from other studies acknowledged by Aniekwu & Audu (2010) reveal that contractors are plagued by inefficient policies and practices, weak institutions and an adverse business environment, complicated by complex social and cultural practices, which make it difficult for indigenous contractors to perform efficiently. Such problems obviously affect the performance of the contractors' project planning in project execution. Consequent to these problems, the contractors are unable to contribute considerably, relative to their foreign

counterparts in the country's construction industry (Bala, et al. 2009; Adams, 1997); which accounts for a substantial percentage of Nigeria's Gross National Product (GNP) as well as half of the government spending (Aniekwu & Audu, 2010).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The method to be used for this study is in this order to provide data to investigate the research questions that is raised. This comprises of research design, population of the study, sampling frame, sample size, sampling technique, data collection instrument, procedure for data collection as well as method of data presentation and analysis.

3.2 Research Design

According to Dixon's work as cited in Animam (2012), research is defined as "a structured inquiry that utilizes acceptable scientific methodology to solve problem and creates new knowledge that is generally applicable". Since this study is the assessment of contract planning construction project performance in Edo State, survey research will be adopted for this study.

3.3 Research Population

A population is any group of individuals that has one or more characteristics in common and that are of interest to the researcher (Cresswell 2005). Therefore the target population of this study includes the contractors and construction consultants in the work environment which are the Quantity surveyors, architect, and engineers. A total population number of 75 will be assumed which will comprise the aforementioned professionals. It is impossible to test everyone in the population, so it is highly crucial to select a good sample to represent his population.

3.4 Sampling Frame

The adequacy of sample is addressed by how well it represents the whole participants from which the sample is drawn

Table 3.4 sampling frame of respondent

Respondents	Number of respondent
Selected Contractors	25
Architects	30
Quantity surveyors	50
Engineers	60
Builders	70
Total	235

3.5 Sample Size

According to Brandon's study as cited in Amna. (2012), there are several approaches to determining the sample size. These include using a census for population, imitating a sample size

of similar studies, using published tables, and applying formula to calculate a sample size. The sample size in respect of the various categories of respondents was determined from the following formula, as used by Kish's study as cited in Dosumu and Adenuga (2013).

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

Where n = Sample Size

N = population size

e = Level of Precision or standard accuracy (0.05)

Table 3.5 Sample size for the study population

Professionals	**Number of respondent**
Selected Contractors	16
Architects	20
Quantity surveyors	32
Engineers	39
Builders	45
Total	150

3.6 Sampling Techniques

The process of sampling or selection of part of the population, from which the characteristics of the larger population can be inferred, has long been accepted as a legitimate and expeditions method of research in Odeyinka's study (as cited in Dosumu & Adenuga, 2013). Sampling theory distinguishes between probability and non-probability sampling. For the purpose of this study, stratified sampling technique will be adopted, which is one type of probabilistic sampling technique and in which case, in a population a sample/respondent is to be drawn from a group that does not constitute a homogeneous group, so as to obtain a representative sample/respondent

during the administration of the questionnaire. This is considered simple and convenient to the achievement of the targeted number of respondents for this study.

3.7 Data Collection Instrument

Data for the study will generally through an opinion based questionnaire survey. This approach will be used in this study due to the questionnaire nature of the research. The close headed questionnaire method will be adopted for this study because close questionnaire have a set number of response as determined by the researcher (Odeyinka & Iyagbastudy as cited in Dosumu & Adenuga, 2013).

3.8 Method of Data Presentation and Analysis

There is the need to employ appropriate method of data collection on the research from field survey. Data analysis involved the use of multiple analytical techniques to facilitate the case of communicating the results while the same time improving its validity. For the purpose of this study, percentile and mean score ranking were employed to analyze the data collected. Firstly the aspect of the questionnaire relating to the background of respondents will be analyzed using percentile and evaluating the investigation into the challenges facing building contractors in financing public building projects will be carried out using mean score. Also, data were presented in tabulated format.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter presents the result and analysis of the data obtained for the purpose of the study in accordance with the objectives for the study. A total of 150 questionnaires were administered and 140 were recovered successfully.

The findings were analysed and presented in the form of frequency tables, numerical values and percentages generated through Statistical Package for Social Science (SPSS).

4.2 Demographic information of the respondent

Table 4.1: Type of Organization

Types of Organization	Frequency	Percentage
Public client	22	15.71
Consultant	35	25.00
Contractor	76	54.28
Private client	7	5.00
Other specify	0	0.00
Total	140	100

From Table 4.1 above the result shows that among the 140 questionnaires that were successfully returned, 22 amounting to (15.71%) of the respondent are public clients, 33 amounting to

(25.00%) of the respondents are consultants, 76 amounting to (54.28%) of the respondents are contractors, and 7 amounting to (5.00%) of the respondents are private clients

Table 4.2: Academic Qualifications

Academic Qualification	Frequency	Percentage
HND	42	30.00
B.Sc/B.Tech	76	54.29
PGD	0	0.00
M.Sc	22	15.71
OTHERS	0	0.00
Total	70	100

From Table 4.2 above, the result shows that among the 140 questionnaires that were successfully returned. 42 respondents amounting to (30.00%) of the respondent are HND, 76 respondents amounting to (54.29%) are B.Sc/B.Tech, and 22 respondents amounting to (15.71%) are M.Sc.

Table 4.3: Participant's work experience

Years of experience	Frequency	Percentage
1-5	35	25.00
6-10	37	26.43
11-15	30	21.43
16-20	25	17.85
Above 20	41	29.29
Total	140	100

From Table 4.3 above, the result shows that among the 140 questionnaires that were successfully returned, 35 amounting to (25.00%) of the respondents had 1-5 years' work experience, 37 amounting to (26.43%) of the respondents had 6-10 years' work experience, 30 amounting to (21.43%) of the respondents had 11-15 years' work experience, 25 amounting to

(17.85%) of the respondents had 15-20 years' work experience and 41 amounting to (29.29%) of the respondents had 20 and above years' work experience in the construction industry.

Table 4.4: Number of Projects executed by respondent within the last 10 years

Projects handled	Frequency	Percentage
1-5	15	10.71
6-10	23	15.71
11-15	30	21.43
16-20	26	18.57
Above 20	47	33.57
Total	140	100

From Table 4.4 above, the result shows that among the 140 questionnaires that were successfully returned 15 respondents amounting to (10.71%) of the total sample size have handled 1-5 projects, 23 respondents amounting to (15.71%) have handled 6-10 projects, 30 respondents amounting to (21. 43%) have handled 11-15 projects, 26 respondents amounting to (18.57%) have handled 16-20 projects, and 47 respondents amounting to (33.57%) have handled 20 projects and above.

Table 4.5: Profession of Respondent

Profession of Respondent	Frequency	Percentage
Architect	29	20.71
Quantity surveyor	60	42.85
Builder	35	25.00
Engineer	17	12.14
Other specify	0	0.00
Total	140	100

From table 4.5 above, the result shows that among the 140 questionnaires that were successfully returned 29 amounting to (20.71%) of respondents are Quantity surveyors, 60 amounting to (42.85%) of respondents are architects, 35 amounting to (25.00%) of respondents are Builder, and 17 amounting to (12.14%) of respondents are Engineers.

2.2.6. Respondent's professional membership status

Membership statues	Frequency	Percentage
Fellow	0	0.00
Corporate member	16	11.43
Probationer	66	47.14
Others specify	58	41.43
Total	140	100

From table 4.2.6 above, the result shows that among the 140 questionnaires that were successfully returned, it is shows that 16 amounting to (11.43%) of respondents are corporate members, 66 amounting to (47.14%) of respondents are probationer's, and 58 amounting to (41.43%) of respondents are others.

4.7. Type of projects handled

Type of project	Frequency	Percentage
Building projects	123	87.86
Civil engineering projects	15	10.71
Heavy engineering projects	0	0
Others specify	1	0.71
Total	140	100

From Table 4.7 above, the result shows that among the 140 questionnaires that were successfully returned, 123 amounting to (87. 86%) of respondents had handled building projects, 15

amounting to (10.71%) of respondents had handled civil engineering projects, 0 amounting to (0%) of respondents had handled heavy engineering projects, and 1 amounting to (0.71%) of respondents had handled other projects.

4.8: **Contract Planning Techniques Used In Construction Industry.**

Identified Contract Planning Techniques	**Mean score**	**Ranking**
Bar chart	3.78	1
Work break-down Structure	3.64	2
Resource planning	3.55	3
Cost breakdown scheduling	3.51	4
Milestone chart	3.44	5
Project evaluation and review techniques (PERT)	3.42	6
Critical path scheduling	3.41	7
Critical path method (CPM)	3.39	8
Discounted cash flow	3.31	9
line of balance	3.26	10
Critical chain	3.25	11
Lester diagram	3.24	12
Link bar chart	3.20	13
Precedence Network diagram	3.11	14
Task line	3.00	15

Table 4.2.8, show contract planning techniques used in construction Industry. The table reveals that Bar chart, Work break-down, Resource planning, Cost breakdown scheduling, Milestone chart, Project evaluation and review techniques (PERT), Critical path scheduling, Critical path method (CPM) , Discounted cash flow, line of balance, Critical chain, Lester , Link bar chart, Precedence Network diagram, Task line.

4.2.9: Factors affecting construction project practice.

Identified Factors affecting construction project practice	Mean score	Ranking
Time needed to rectify defects	3.83	1
Size of the project	3.79	2
Cost of rework	3.76	3
Project design cost	3.71	4
Professional expertise	3.66	5
Time availability	3.61	6
Type of the project	3.52	7
Type of client	3.51	8
Procurement method	3.4	9
Quality of equipment and raw materials	3.39	10
Unavailability of competent staffs	3.38	11
Waste rate of materials	3.37	12
Profit rate of project	3.32	13
Project budget	3.23	14
Quality assessment system in organization	3.19	15
Conformance to specification	3.15	16

Table 4.2.9; show factors affecting construction project practice. The table reveals that Time needed to rectify defects, Size of the project, Cost of rework, Project design cost, Professional expertise, Time availability, Type of the project, Type of client, Procurement method, Quality of equipment and raw materials, Unavailability of competent staffs, Waste rate of materials, Profit

rate of project, Project budget, Quality assessment system in organization, Conformance to specification weighted.

4.2.10.1: Barriers to Effective Project Planning Based on Time.

Identified Barriers to Effective Project Planning Based on Time	Mean score	Ranking
Disputes	4.04	1
Delays	3.96	2
Technical incompetence	3.86	3
Claims	3.84	4
Material shortages or late delivery	3.78	5
Late honouring of payments certificates	3.68	6
Design deficiencies	3.66	7
Project complexity	3.66	8
Absenteeism of workers/shortages of craftsmen	3.60	9
Client's dissatisfaction	3.53	10
Plants, equipment's & machine breakdown/inadequacy	3.51	11
Increase in prices of materials/labour	3.41	12
Inadequate project documentation	2.98	13
Too many variations	2.97	14
Communication problems between functional areas of business	2.96	15

Table 4.2.10; shows barriers to effective project planning. The table reveals that Disputes, Delays, Technical incompetence, Claims, Material shortages or late delivery, Late honouring of payments certificates, Design deficiencies, Project complexity, Absenteeism of workers/shortages of craftsmen, Client's dissatisfaction, Plants, equipment's & machine breakdown/inadequacy, Increase in prices of materials/labour, Inadequate project documentation,

Too many variations, Communication problems between functional areas of business barriers to effective project planning based on time weighted . The respondents ranked Disputes, Delays, Technical incompetence.

4.2.10.2: Barriers to Effective Project Planning Based on Cost.

Identified Barriers to Effective Project Planning Based on Cost	Mean score	Ranking
Too many variations	3.84	1
Increase in prices of materials/labour	3.77	2
Technical incompetence	3.73	3
Project complexity	3.65	4
Plants, equipment's & machine breakdown/inadequacy	3.62	5
Disputes	3.61	6
Late honouring of payments certificates	3.50	7
Claims	3.48	8
Delays	3.45	9
Design deficiencies	3.42	10
Material shortages or late delivery	3.36	11
Absenteeism of workers/shortages of craftsmen	3.35	12
Inadequate project documentation	3.11	13
Client's dissatisfaction	2.99	14
Communication problems between functional areas of business	2.93	15

4.2.10.2 barriers to effective project planning based on Cost includes too many variations, Increase in prices of materials/labour, Technical incompetence, Project complexity, Plants, equipment's & machine breakdown/inadequacy, Disputes, Late honouring of payments certificates, Claims, Delays, Design deficiencies, Material shortages or late delivery,

Absenteeism of workers/shortages of craftsmen, Inadequate project documentation, Client's dissatisfaction, Communication problems between functional areas of business.

4.2.10.3: Barriers to Effective Project Planning Based on Quality.

Identified Barriers to Effective Project Planning Based on Quality	Mean score	Ranking
Technical incompetence	3.55	1
Absenteeism of workers/shortages of craftsmen	3.26	2
Design deficiencies	3.23	3
Material shortages or late delivery	3.21	4
Claims	3.14	5
Too many variations	3.12	6
Delays	3.11	7
Late honouring of payments certificates	3.10	8
Plants, equipment's & machine breakdown/inadequacy	3.05	9
Communication problems between functional areas of business	3.03	10
Increase in prices of materials/labour	3.00	11
Client's dissatisfaction	2.99	12
Disputes	2.91	13
Project complexity	2.79	14
Inadequate project documentation	2.77	15

4.2.10.3; shows the barriers based on quality, and the table revealed barriers such as Technical incompetence, Absenteeism of workers/shortages of craftsmen, Design deficiencies, Material shortages or late delivery, Claims, Too many variations, Delays, Late honouring of payments certificates, Plants, equipment's & machine breakdown/inadequacy, Communication problems

between functional areas of business, Increase in prices of materials/labour, Client's dissatisfaction, Disputes, Project complexity, Inadequate project documentation.

4.3 Results and Discussion

Table 4.2.8, show contract planning techniques used in construction Industry. The table reveals that Bar chart, Work break-down, Resource planning, Cost breakdown scheduling, Milestone chart, Project evaluation and review techniques (PERT), Critical path scheduling, Critical path method (CPM) , Discounted cash flow, line of balance, Critical chain, Lester , Link bar chart, Precedence Network diagram, Task line.

According to Akinradewo et al. (2022) contract planning techniques in construction Industry were identified as: Critical Path Method, Bar/Gantt Chart, Project Evaluation, Review Technique, Work Breakdown Structure, and Line of Balance. The respondents ranked Bar chart as 1st with mean score of 3.78, Work break-down as 2nd with mean score of 3.64 and Project evaluation and review techniques (PERT). This is in line with the study of (Harris & McCaffer, 2013) who asserted that due to its simplicity, charts are used for presentation of the results of other sophisticated techniques as it makes it easier to monitor progress of work on site thereby making professionals adopt it. Technically, WBS is the basis for all other planning techniques as it gives the breakdown of all the activities to be carried out in achieving the construction project but it doesn't provide the additional information needed for efficient project planning.

Table 4.2.9; show factors affecting construction project practice. The table reveals that Time needed to rectify defects, Size of the project, Cost of rework, Project design cost, Professional expertise, Time availability, Type of the project, Type of client, Procurement method, Quality of equipment and raw materials, Unavailability of competent staffs, Waste rate of materials, Profit

rate of project, Project budget, Quality assessment system in organization, Conformance to specification weighted.

According to Samuel et al. (2016) Factors affecting construction project performance were identified as: project design cost, cost of reworks, unavailability of resources, average delay in regular payment, quality of equipment and raw materials and unavailability of competent staffs to handle construction process. The respondents ranked Time needed to rectify defects, Size of the project.

Table 4.2.10; shows barriers to effective project planning. The table reveals that Disputes, Delays, Technical incompetence, Claims, Material shortages or late delivery, Late honouring of payments certificates, Design deficiencies, Project complexity, Absenteeism of workers/shortages of craftsmen, Client's dissatisfaction, Plants, equipment's & machine breakdown/inadequacy, Increase in prices of materials/labour, Inadequate project documentation, Too many variations, Communication problems between functional areas of business barriers to effective project planning based on time weighted . The respondents ranked Disputes, Delays, Technical incompetence.

The respondents were further asked to rank the barriers based on Cost. According to Table 4.2.10.2 barriers to effective project planning based on Cost includes too many variations, Increase in prices of materials/labour, Technical incompetence, Project complexity, Plants, equipment's & machine breakdown/inadequacy, Disputes, Late honouring of payments certificates, Claims, Delays, Design deficiencies, Material shortages or late delivery, Absenteeism of workers/shortages of craftsmen, Inadequate project documentation, Client's dissatisfaction, Communication problems between functional areas of business.

Subsequently the respondents were further asked to rank the barriers based on quality, and the table revealed barriers such as Technical incompetence, Absenteeism of workers/shortages of craftsmen, Design deficiencies, Material shortages or late delivery, Claims, Too many variations, Delays, Late honouring of payments certificates, Plants, equipment's & machine breakdown/inadequacy, Communication problems between functional areas of business, Increase in prices of materials/labour, Client's dissatisfaction, Disputes, Project complexity, Inadequate project documentation.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This is the final chapter in this research, which contains recommendations and conclusions that hope will contribute to solving the problem of cost escalation in the construction industry.

5.2 Conclusion

The study set out to assess contract planning practice on construction project performance in Edo state which was achieved through thorough literature review and questionnaire survey. From the result of this study, it could be concluded that Bar chart, Work break-down, Resource planning, Cost breakdown scheduling, Milestone chart, Project evaluation and review techniques (PERT), Critical path scheduling are the most frequent used planning techniques in Edo state. Time needed to rectify defects, Size of the project, Cost of rework, Project design cost, Professional expertise, were ranked first 5 factors affecting construction project practice, The respondents were further asked to rank the barriers to effective project planning based on time, cost and quality. The respondents ranked disputes as the highest barrier to effective project planning

based on time, too many variations was ranked highest based on cost, and Technical incompetence was ranked highest based on quality.

5.3 Recommendations

Based on the conclusions drawn from the findings, it is therefore recommended that;

i. In the competitive selection of consultants for a contract or group of contracts, previous working experience with client should always be among factors given high attention.
ii. In order to minimize delay in the honoring of payment certificates after they have been issued, the number of persons involved in the process of checking and endorsing them should be reduced; only those who would be held responsible in the event of wrong payment should be involved.
iii. Human resources in the construction industry should therefore be developed through proper and
iv. Continuous training programs about construction projects performance.
v. Proper planning is not an extravagance but rather a basic need, but it is not enough to plan, implementation of the plans is the key to ensure project success.
vi. Therefore, contract planning practice on construction project performance in Edo state have been identified in this study, the knowledge of these factors will assist construction stakeholders in re-evaluating their contract planning technique's and methods in order to enhance them and in this manner enhance the performance of their construction projects.

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APPENDIX

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 currently working on a research study on "**Assessment of Contract Planning Practice on Construction Project Performance In Edo State"**. This research is aimed to assess contract planning practice on construction project performance in Edo state.

To successfully undertake this research, it is mandatory to look into the issues from different perspectives by involving professionals who have experience in the construction sector within Edo state. In this respect, you are the one who can give the correct and necessary information. Hence, I kindly request you to complete the accompanying questionnaire.

I would like to confirm you that your response will be kept strictly confidential and it will be used exclusively for the purpose of this research. Besides, your quick response is vitally important in order to finalize the research timely and I would appreciate if you return the completed questionnaire within a week of your receipt of same.

Thank you very much for your time and cooperation and looking forward to receiving your response.

Yours Sincerely,

Opara Naomi

09039204989

SECTION A: DEMOGRAPHIC INFORMATION OF RESPONDENT.

Please tick (√) in the appropriate box that corresponds to your response.

1. Kindly indicate your type of organization

(a) Public client { } (b) consultant { } (c) contractor { } (d) private client { } (e) others specify _____

2. Academic Qualification of respondent

(a) HND. { } (b) B.Sc/B.Tech { } (c) PGD { } (d) M.Sc/M.Tech { } (e) PhD{ } (f) others specify { }

3. Respondent's Years of Experience

(a) 1-5 years{ } (b) 6-10years{ } (c) 11-15years{ }(d) 16-20years { } (e) Above 20 years { }

4. Numbers of projects executed within the last ten years

(a) 1-5 projects { } (b) 6-10 projects { } (c) 11-15 projects { } (d) 15-20 projects {] (e) above 20 projects { }

5. Respondent's Profession

(a) Architecture { } (b) Quantity Surveying { } (c) Building Technology{ } (d) Engineering { } (e) others specify.....

6. Respondent's professional membership status

Membership grade	NIA	NIQS	NIOB	NSE/COREN
Fellow member				
Corporate member				
Probationer				

Others specify				

7. Type of projects handled

(a) Building projects { } (b) Civil Engineering { } (c) Heavy Engineering { } (d) Others specify .....

SECTION B

8. The following have been identified as contract planning techniques used in construction industry. Kindly rank them based on the level of importance by ticking the appropriate box (√) using a scale of 5-1.

(5-very important 4-Important 3-Slightly important 2- Less important 1-Not important)

		LEVEL OF IMPORTANCE				
s/n	**Identified Contract Planning Practice**	**5**	**4**	**3**	**2**	**1**
i.	Bar chart					
ii.	Link bar chart					
iii.	Critical path method (CPM)					
iv.	Project evaluation and review techniques (PERT)					
v.	Cost breakdown scheduling					
vi.	Critical path scheduling					
vii.	Resource planning					
viii.	Milestone chart					
ix.	Work break-down Structure					
x.	Precedence Network diagram					
xi.	Task line					
xii.	Discounted cash flow					
xiii.	Critical chain					

xiv.	Lester diagram					
xv.	line of balance					
	Others please specify					
i.						
ii.						
iii.						
iv.						
v.						
vi.						

9. The following have been identified Factors affecting construction project practice. 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)

		Level of significance				
s/n	**Identified Factors Affecting Construction Project Practice**	**5**	**4**	**3**	**2**	**1**
i.	Project design cost					
ii.	Cost of rework					
iii.	Size of the project					
iv.	Waste rate of materials					
v.	Profit rate of project					
vi.	Time availability					
vii.	Time needed to rectify defects					
viii.	Procurement method					
ix.	Quality of equipment and raw materials					
	Type of the project					
x.	Unavailability of competent staffs					
xi.	Conformance to specification					
xii.	Quality assessment system in organization					

xiii.	Type of client					
xiv.	Project budget					
xv.	Professional expertise					
	Others please specify					
i.						
ii.						
iii.						
iv.						

10. The following have been identified barriers to effective project planning. 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)

		Level of significance														
		Time					**Cost**					**Quality**				
s/n	**identified effects of contract planning practices**	**5**	**4**	**3**	**2**	**1**	**5**	**4**	**3**	**2**	**1**	**5**	**4**	**3**	**2**	**1**
i.	Late honoring of payments certificates															
ii.	Too many variations															
iii.	Technical incompetence															
iv.	Design deficiencies															
v.	Material shortages or late delivery															
vi.	Delays															
vii.	Increase in prices of materials/labor															
viii.	Inadequate project documentation															
ix.	Project complexity															
x.	Disputes															
xi.	Plants, equipment's & machine breakdown/inadequacy															
xii.	Claims															

xiii.	Client's dissatisfaction															
xiv.	Absenteeism of workers/shortages of craftsmen															
xv.	Communication problems between functional areas of business															
xvi.	Poor weather condition															
	Others please specify															
i.																
ii.																
iii.																
iv.																
v.																
vi.																