UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION, KUMASI

EXAMINING FACTORS AFFECTING BIDDING DECISIONS OF CONSTRUCTION FIRMS IN GHANA: A STUDY OF CONSTRUCTION FIRMS IN SOUTH TONGU DISTRICT

FIADOR GUGGISBERG MAWULI

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BY

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(1080454)

A Dissertation in the Department of CONSTRUCTION AND WOOD TECHNOLOGY EDUCATION of the Faculty of Technical and Vocational Education, submitted to the School of Graduate Studies, University of Education, Winneba in partial fulfillment of the requirements for the award of Master of Technology (Construction Management)

MAY, 2022

DECLARATION

STUDENT'S DECLARATION

I, FIADOR GUGGISBERG MAWULI, declare that this Thesis, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another Degree elsewhere.

SIGNATURE: ……DATE: ……

SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of this dissertation were supervised by me, in accordance with the guidelines for supervision of dissertations laid down by University of Education, Winneba.

Name of Supervisor: Dr. Nongiba Alkanam Kheni

Signature …….. DATE: ……

DEDICATION

To God be the Glory, this project work is dedicated to Almighty Omnipotent, omnipresent, and omniscient God, Jesus Christ of Nazareth and the Host of Angels who guided through thick and thin in my studies by providing indent wisdom, knowledge and greater understanding to come this far. To my parents Mr. & Mrs. Nicholas Kwablah Fiador and my humble better half Mrs. Helen Dzifa Atinyo- Fiador who actually engineered me to pursue this programme with all her support, both spiritually, physically, and mentally that tilt me to persevere persistently. Not forgetting my wards, Master Cyril Klenam Fiador, Miss. Lordina Kekeli Fiador and my siblings who supported in prayer during the course of studies.

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Finally, those whose name could not appear due to limited space; I say the sovereign God bless you abundantly. Amen.

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ABSTRACT

Designing and executing an effective bid is a huge challenge for most contractors who seek construction contracts. The aim of this study was to examine factors affecting bid/no bid decision of construction companies in the South Tonqu District in Ghana. The specific objectives of the study include; to ascertain factors affecting the bid/no bid decisions of construction firms in the South Tongu District in Ghana, to determine challenges facing contractors when submitting bids in the South Tongu District in Ghana, and to determine strategies for overcoming challenges to bid submission in the South Tongu District in Ghana. The study adopted a cross sectional descriptive survey design. The target population of construction professionals with a population made up managers, quantity surveyors, site supervisors, and site engineers of some selected construction firms in the South Tongu District. The study adopted convenience sampling technique to select seventy-five respondents. The findings of the study showed that the most significant factors affecting the bid/no bid decisions of construction firms are; financial capability of the client, profitability, risk involved in investment and degree of hazard/safety, and availability of labour/equipment and materials. The study further revealed that inadequate knowledge of practitioners on bidding methods, corruption, insecure economic environment, political influence, project uncertainties and communication problems are the key challenges faced by contractors when submitting bids for contracts. Finally, the study found that the challenges face by contractors in their quest to bid can be minimized when contractors acquire training on bidding process and use their past performance data and technology during bidding. Based on the findings, the study recommends that contractors should spend time acquainting themselves with the bidding process and equipping themselves with the right knowledge to help them improve their chances of winning bids.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Businesses rely on the availability of business opportunities such as markets and clients. Contractors continue in business just because they are doing business, by being employed or will be employed to do a work in their specific area of proficiency from time to time. One of the methods used by contractors to remain in business is through direct engagement by employer/buyer or through tendering Otu (2020). For instance, the civil works contractor's survival in business depends so much on the availability of tender opportunities from the public sector and to some extent in the private sector. As indicated by Thorne, (2018), getting a new project or contract is the life-blood of project-oriented organizations, including the construction company.

The first step towards being given a construction contract is for construction firms to partake, from time to time, in a competitive bidding or tendering. For this reason, responding to bid and winning construction projects is an integral part of any successful contracting business. Construction bidding process is very costly and time consuming, because a greater number of construction projects are awarded on the basis of the lowest tender amount. Dulaimi and Shan (2002) indicated that most construction projects are let through competitive bidding, which necessitates that, the roles of the customer and contractor be defined accordingly. Dulaimi and Shan (2002) further maintained that though construction bidding process is motivated by a lowest cost attitude, when done properly, it is an excellent opportunity for construction firms to increase profits and also expand the network of the owners, general contractors, and construction managers.

According to Otu (2020), the most important part of a construction manager's job, is the bidding process because a ten percent (10%) higher success rate in winning bids can represent a huge jump in profits. Lee (2020) indicated that the bidding process is one of the significant construction procedures in construction projects which requires getting the best team to work together from the beginning to the end of the project.

Bidding in construction is the process of submitting a proposal (tender) to undertake, or manage the undertaking of a construction project. The process starts with a cost estimation from designs and material take offs (Lee, 2020). The tender is treated as an offer to do the work for a certain amount of money (firm price), or a certain amount of profit (cost reimbursement or cost plus). The tender, which is submitted by the competing firms, is generally based on bill of quantities, bill of approximate quantities or other specifications, which enable the tenders to attain higher levels of accuracy, thus the statement of work. Tendering means the technique of procurement whereby suppliers, contractors, or consultants are requested by the procuring entity to compete with each other in submitting priced tenders for goods, works or services (Lee, 2020).

Bidding involves contractors making strategic decisions as it concerns the financial, managerial, manpower and physical resources of the firm before considering embarking on the project. With this in mind, the most significant decisions that must be made by the contractor's firm will center on whether to bid (Egemen & Mohammed, 2007). The ability of contractors to address various bidding situations is an important ingredient for survival, particularly in today's competitive market. The different bidding situations together with the decision involved in the conversion of the estimate into a tender is often considered to be the most important step in the bidding process.

The contractor's decision whether to bid or not for a certain project is usually associated with doubt and may be influenced by many factors. While some of these factors are directly related to the contractor, other factors are related to the client, contract and project characteristics as well as the business environment (Adnan, Sherif & Alaa, 2011). A contractor's response to tender documents, safeguards the work for the contractor after a detailed client valuation process. From the viewpoint of the client a bid could be seen as quality assurance that guarantees the job will be delivered accurately and free of errors (Lewis, 2015). Basically, a bid is the supplier's response to the owner's requirements for the project, which is also a mandatory document that specifies the suppliers' and clients' responsibilities (Cleden, 2011). The process of forming a bid begins with examining construction plans and performing material quantity takeoffs. Construction projects are awarded on the basis of the lowest tender that meets the stated requirement. For this reason, contractors in are faced with two serious decisions, thus, they have to decide whether to bid a project or not. If the contractor decides to bid, he must decide on the proper markup size in order to be the lowest bidder and realize a reasonable profit. As designated by Lee (2020), as a construction manager, to put your best foot forward, you must have a solid understanding of the methods and contracts that make up the construction bidding processes, as well as the common errors to avoid along the way.

Markup is the amount contractors must add to the hard cost of a job to cover both overhead and profit, it is also called profit margin (Hoare, 2018). It is said to be the amount added onto costs to create a sales price, it does not define profit. This merely defines how much to charge over costs so a firm will be able to make a profit. Most contractors merely guess the time and cost of labor when pricing a job and, as a result, must also estimate the markup necessary to turn a sufficient profit and stay in business (Hoare, 2018). Rimm (2017)

mentioned that the markup charged by small contractors on residential and commercial jobs takes into consideration all costs such as materials, labor, insurance, in-house crew, subcontractor fees and necessary permits.

Contractors usually set the markup at a level believed to be sufficient to win the tender at a margin that is in line with the strategic position of the firm within the market (Akintoye 2000). Lately, researchers projected the use of tools such as artificial neural networks to develop a decision support system for estimating bidding size (Li & Love, 1999). Contractors bidding procedure comprises two crucial decisions (Shash, 1993). The first is the decision whether or not to bid, the second is associated with the determination of the bid price. The decision to bid is complex, dynamic and involves many factors, and the selection of the most appropriate project for which to bid is fundamental to the commercial success of building contractors. The preparation of a bona fide bid commits the contractor to some expenditure, which is only recovered if the bid is successful (Lowe & Parvar, 2004). Construction organizations are therefore encouraged to be selective, choosing which work they will bid for from a continually changing array of potential projects (Lowe & Parvar, 2004).

While some construction works are executed through direct labor in Ghana, the bulk is contracted to independent construction firms. It is generally believed that wrong bidding practice is a major contributor to the construction industry's inefficiency. Yusif and Odeyinka (2000) remarked that an unguided non-selective approach to bidding by a contractor inevitably waste precious estimating effort. Improvement in biding practice in Ghana therefore has the potential to enhance the industry's performance and save the nation millions of Cedis in avoidable waste and contribute to the survival and growth of the construction industry (Adegbile, 2004). As a result, having a sound data of the factors influencing the contractors' bidding decision is imperative in classifying the 'optimum'

bidding. The present study therefore highlights on the factors affecting bidding decisions of construction firms in the South Tongu District.

1.2 Statement of the Problem

Designing and executing an effective bid is a huge challenge for most contractors who seek construction contracts in South Tongu District. Even though it is important for construction firms to submit a bid on a project only after gathering full information on the job and scope of work, some inexperienced contractors sometimes enter contracts without knowing their full scope, which often has negative results for all parties involved. As indicated by Otu (2020), even though most contractors have years of know-how in their trade, many go into the bidding process with little practical knowledge.

Obuji (2003) indicated that some contractors are not chosen during a bidding process by prospective clients because, they neglect various factors that affect the success and failures of submitting a bid for a contract. Some contractors do not structure and draft their bids in an appropriate manner; hence their chance of being contracted is reduced.

Shash (1993) observed that contractors' decision to bid has received very little attention from researchers. For over a decade the situation did not change as Lowe and Parvar (2004) reiterated again that there has been reasonably little objective research into contractors' decision to bid or not to bid for project. Evidence abound that this decision is usually determined by subjective rather than objective information. If the assertion by these notable writers is noteworthy, then there remains a deaf of knowledge to gained from factors affecting contractors' decision to bid.

In the light of the forgoing arguments on the need for empirical studies and knowledge governing bid decision-making, the prime aim of the present study is to examine factors affecting bidding decision using contractors in Sogakope in the South Tongu District in Ghana.

1.3 Aim and Objectives of the Study

The aim of the study is to examine factors affecting bid/no bid decision of construction companies in the South Tonqu District in Ghana.

1.3.2 Objectives of the Study

The specific objectives based on the aim are:

1. To find out the issues that affect contractors' decision to bid, in the South Tongu District.
2. To find out the challenges face by construction firms in their contracting business in the South Tongu District.
3. To identify areas for improvement to allow contractors to participate adequately in the bidding process in the South Tongu District.

1.4 Research Questions

The study answered the following research questions based on the objectives:

1. What are the factors affecting the bid/no bid decisions of construction firms in the South Tongu District in Ghana?
2. What are the challenges facing contractors when submitting bids in the South Tongu District in Ghana?
3. What strategies can be employed for overcoming challenges to bid submission in the South Tongu District in Ghana?

1.5 Significance of the Study

In the first place, the study will help contractors to be mindful of the issues which need to be considered when they plan to submit bids for projects. This research will also provide the information that would be used by any contractor to create a competitive bidding strategy. This way, the contractors in the district understudy would be self-motivated, efficient to be able to bid and undertake construction projects of any size and participate effectively in providing their services in the district and in the national market.

Additionally, this study will give a clear understanding into the various ways in which profit and efficiency from contracts and contracting can be improved and how the challenges facing contract bidding can be properly tackled. Again, the study will help contractors to be aware about the different factors affecting bids and their effects on contractor's efficiency and chances of winning a contract. The findings of the study will help in building a strong and better contract strategy and bidding guideline for contractors in the South Tongu District.

1.6 Scope of the Study

This research focuses mainly on the factors that affect bidding of construction firms in the South Tongu District. In addition, the study was also restricted to issues that affect contractors' decision to bid, challenges face by construction firms in their contracting business and the areas for improvement to allow contractors to participate adequately in the bidding process. Therefore, the results and recommendations may not be used as a broad view of other construction companies or contractors in other parts of Ghana, as the researcher could not cover a wider scope due to time constraints.

1.7 Limitations of the Study

The study adopted a quantitative research strategy involving the use of structured questionnaires. The questionnaire items were close-ended questions which led to limited outcomes so the results may not represent the actual phenomenon occurring in a natural setting. Also, under the multiple section, the respondents have limited options of responses based on the selection made by the researcher therefore additional opinions from the respondents may be neglected On the basis of the scope as a limitation, the study could have been extended to the other construction firms in Ghana as a whole and the world in general but due to limited time, the researcher restricted the study to only the construction firms in the South Tongu District of the Volta Region of Ghana.

1.8 Organization of the Study

The study consists of five chapters. Chapter one is the introduction. It sets up and discusses the background of the study, statement of the problem, objectives, research questions, the significance of the study, the scope, limitations, and organization of the study.

Chapter Two reviews the literature on construction bidding. It attempts to place the current study within the broader context of research on factors affecting the decision to bid in construction firms. It makes an effort to explore issues that affect contractors' decision to bid, challenges face by construction firms in their contracting business and the areas for improvement to allow contractors to participate adequately in the bidding process. Additionally, it presents theoretical and empirical evidence to support the fact that a lot of factors affects construction bidding.

Following the literature review, chapter three presents the methodology used in the study, the chapter focuses mainly on the procedure used to collect data, the techniques, and tools used in the selection of organizations and respondents. Specifically, the section discusses research design, population of the study, sampling technique and sample size, data collection instruments, data collection technique and data analysis. Chapter four presents result of the study whereas chapter five finishes it off by presenting the summary, conclusions and recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

Chapter two reviewed extant literature and previous research works relating to the subject of factors influencing bidding among construction firms in Ghana. The chapter presented an overview of the construction industry, bidding procedure in Ghana, factors that affect contractors' decision to bid, challenges contractors face when submitting bids for projects and the strategies for preventing challenges faced by contractors in their quest to submit bids for projects.

2.2 Concept of Construction Bidding

Bidding is the offering of particular prices for something, especially at an auction. According to the free Dictionary (2021), the term bid refers to an offer made by an individual or corporation to purchase an asset. Buyers commonly make bids at auctions and in various markets, such as the stock market. Bids may also be made by companies that compete for project contracts. When a buyer makes a bid, they stipulate how much they are willing to pay for the asset along with how much they are willing to purchase. A bid also refers to the price at which a market maker is willing to buy a security. But unlike retail buyers, market makers must also display an ask price (Bidnet, 2019).

Project bidding is the process by which offers are invited from interested construction contractors to carry out specific packages of construction work. It is a common procurement method to obtain construction services. Bidding is the procedure that links the client to the construction firm. This process informs the client what construction firms are ready to sell and also specifies the price they are willing to sell those services to the client (Runeson & Skitmore, 1999). It is also the method used to select an appropriate contractor, at a time appropriate to the conditions, and to obtain from him at the right time

a suitable offer upon which a contract can be agreed (Aqua group, 2006). Bidding comprises the entire process of tendering, inviting bids or quotations for supply of manpower by the service provider including the signing of the contract with the selected service provider. Therefore, bidding includes all phases of the bidding process beginning with the issuance of the notice for inviting quotations to the execution of the contract (for supply of manpower) between the procuring entity and the selected provider (Bidnet, 2019). Construction bidding is the process of submitting a tender by the contractor to the client as a proposal to conduct or manage a particular construction project.

2.2.1 Bidding Procedure

The bidding process starts due to the client's requirement for a new or renovated piece of architecture or similarly engineering works. For that reason, the overall aim of the tender process must be to acquire a firm with the relevant skills to construct this project. Nevertheless, there are a number of objectives which stem from this overall aim. O'Connell (2010) recommended that the client needs to obtain a finished building with an acceptable quality and over a suitable period. The Aqua group (2006) postulated that the customer's objectives simply, as the client wants a building to be completed to the highest quality, at the lowest cost and in the shortest amount of time. Therefore, it can be understood that the client's main objectives with the bidding process, is to arrive at a point where he or she has obtained an offer of a new building at an acceptable cost, over an acceptable time and to a satisfactory standard or quality. Brooks (2008) noted that political factors have meant that many public projects must be tendered to ensure the public are securing the most cost-effective tenderer to carry out the works. This has parallels with the Aqua group's (2006) understanding that accountability must be considered when selecting

a contractor. The Aqua group proceed to suggest that, through the bidding process, the decision to choose one contractor over another must be justifiable.

The bidding process is a very important part of a construction project. This enables companies to hire contractor (Ajun, 2019). The basic construction bidding process involves: The client or general contractors send bid invitations to the contractors or the subcontractors. The contractors or the subcontractors receive the invitation that includes: scope of work, time of completion, penalty and pre-qualification details. Contractors or Sub-Contractors download the tender document and review the project based on their respective cost codes, after which the contractors or sub-contractors submit their bid to the client or general contractor. Then the general contractor or client awards the bid to the subcontractors with a most competitive bid and it is converted into a commitment (Ajun, 2019).

Hanák, Drozdová and Marovic´ (2021) specified that the process of competitive bidding comprises two unique but interrelated stages that is, cost estimating and tendering. Cost estimating commences upon receipt of the bid documents from the owner or owner's representative and is described as calculating the probable cost to the contractor of efficiently carrying out the construction work if awarded the contract to construct the project. Tendering, on the other hand, is described as establishing the final price and terms for the contract that will be submitted (tendered) to the promoter or his representative. This involves an assessment of the likely margin of error in the cost estimate together with the risk and possible financial effects of undertaking the project.

The second stage is the bid adjudication stage. Bid adjudication decisions form one of the two principal strategic decisions affecting contracting firms' work procurement and

subsequent long-term performance, the other being the earlier bid/no bid decision. Together these two decisions considerably influence the nature of projects undertaken by contracting organizations and consequently affect the strength of the firms in the industry. The prescribed practice is that bid adjudication decisions are made at formal meeting that take place a few days before the final bid tender dates to allow sufficient time for finalization of the bid documents prior to tender. Summary reports should be prepared, based on the cost estimating process, and presented at the bid adjudication meeting. The adjudicators, normally senior managers or directors reflecting the significance of such decisions, are then to review the cost estimate and associated information and finalize the contract price (making any necessary amendments or additions for risks, uncertainties overheads and profit) as a commercial decision (Hanák et al´ 2021).

Major decisions of these kind are expected to be aligned in some way with bidding firms expressed or implied general objectives and goals to obtain. Decision makers are therefore urged to know what these objectives and goals are, how they are related to each other, what their relative importance is and how a particular decision on any one project is going to affect these objectives and goals. This implies the existence of supporting information concerning these aspects of the decision, structured in an appropriate form (Hanák et al´ 2021).

There are several main steps that are mostly used in the bidding or tendering process (Creswel, 1999). In the first place, the organization requesting the tender will determine the type of tender that will be used, as well as what will be involved in the bidding process. Second, request for tender is prepared: the request for tender outlines what is required, the contractual requirements and how you should respond. Thirdly, tenders are invited: the value, complexity and business category determine how tenders are invited. Fourthly,

contractors or suppliers respond: you should first obtain all relevant documentation. At this stage it is important to attend any pre-bidding briefing sessions being conducted, clarify any uncertainties, plan your response, prepare your response and submit your response in the right format, on time and at the right location (Fadhil & Hong, 2002).

The fifth stage, is the stage of evaluation and selection: each bidder or tender will be checked for compliance, and if compliant, then evaluated against the criteria specified in the tender documentation. The tender that offers best value for money will win the contract or business. The next stage which is six, involves notification and debriefing: when a contract has been awarded, the successful bidder or tenderer will be advised in writing (of the outcome). Unsuccessful bidders or tenderers are also advised and offered a debriefing interview (Dozzi *et al*. 1996). Finally, contracts established and managed: generally, a formal agreement will be required between the successful tenderer and the relevant agency.

2.2.2 Phases of the Bidding Procedure

According to Gerardi (2021), the bidding process is like a job application or a resume. It gives an overview of a contractor's capabilities to carry out the work to completion. If the contractor's first impression is impeccable, then the contractor is likely to move to the interview phase. Contractors can find bid invitations from various sources. The bidding process is highly regulated for government projects, but it can be less formal for private projects. However, it more or less follows the same procedure. The necessary steps are: Bid Solicitation, Bid Submission, Bid Selection, Contract Formation and Project Delivery.

2.2.3 Bid Solicitation

Bid solicitation is a formal request for bids that may be in the form of a Request for Quotations, Request for Qualifications, Request for Tenders, Request for Proposals or Request for Standing Offer. It is also said to be a phase of the procurement process in which the business actively solicits offers from competing suppliers through an invitation to bid or request for proposals. Gerardi (2021) indicated that bid solicitation is where the project owner sends out a Request for Proposals (RFP) or an Invitation for Bid (IFB). For public projects, they are generally large and open invitations. This is when the project owner lays out the project requirements, specifies the contract type, and defines the delivery method to be used. The pricing heavily determines the awarding of the contract. However, the bid solicitation phase requires more information, such as the Request For Qualification. (RFQ). In retrospect, it is the method used to get as much information as necessary on the prospective contractors' company history.

2.2.4 Bid Submission

Bid submission is the information submitted by a bidder in response to the request for tender. This usually include all the relevant company information. It has all the company's previous projects, management plans, and track record for completing tasks on time. The bid should be as accurate as possible. It should also include a cost estimate based on the bill of quantities and blueprints. Construction firms can arrive at accurate costs using estimation software. Other things to include are overheads, labor, equipment, and materials. The best reasonable price influences the winning bid. The bid submission needs to have a professional touch since it is the face of the company. Also, depending on the project method, this may occur after a general contractor wins a bid (Salem, Salman, & Ghorai, 2017).

2.2.5 Bid Selection

Selected bid means the bid of the successful bidder as accepted by the authorized representative. There are rules, especially in government projects, to ensure that the lowest bidder wins the contract. These rules out any manner of fraud or biases in awarding the contract so that eventually, price is the ultimate equalizer. However, on private projects, there is more leeway to consider other factors when choosing a winning bid. The price always acts as a tie-breaker when contractors have comparable bids. Selective bidding means selection of and inviting more competent bidders to submit bids and awarding a contract after bids are publicly opened, to that responsible and responsive bidder whose bid contains the lowest price offered. The three selection methods used to buy construction are low-bid selection, best-value selection, and qualifications-based selection. The solicitation instrument used for low-bid selection is the invitation for bids (or advertisement for bids) (Gerardi, 2021).

2.2.6. Contract Formation

After the owner selects a bid that meets their requirements, the parties involved must form and sign a legally binding contract before pre-construction. This is also an opportunity for final pricing negotiations by the company that wins the bid. Any other unclear contract clauses can also be discussed and finalized. McLane (2013) specified that contracts are formed by an “offer” and an “acceptance. Hence, whether acceptance of a bid creates a contract largely depends on whether that bid legally constitutes an “offer.” An offer capable of forming the basis of a contract must specifically state its essential terms. Additionally, contract is formed when all of the following key elements are present: offer; acceptance; consideration (that is, money or money's worth); certainty of terms; and intention to create legal relations (Gwendoline, 2019).

2.2.7 Project Delivery

After forming the contract, the project is ready to roll based on the project delivery method used. A project delivery method is a system used by an agency or owner for organizing and financing design, construction, operations, and maintenance services for a structure or facility by entering into legal agreements with one or more entities or parties (Salem, Salman, & Ghorai, 2017).

2.3 Decision Making in the Context of Bidding

Campion (2017) defined decision-making as the act of making a choice from possible alternatives for the attainment of a desired objective or as a solution to specific problem. Decision making is the process of making choices by identifying a decision, gathering information, and assessing alternative resolutions. The act of making a choice is the result of a rational mental process involving definition, analysis, and evaluation of the information gathered. Decision-making is an important component of life. It forms parts and parcel of mankind's daily activity. Everything that man does involve making decisions. In business environments, management and administration are always confronted with problems from all angles which require prompt response to address the given concern. The decisions managers make have far-reaching implications. They could affect the lives of other people who relate to them, the organization in which they belong, and themselves. Thus, the survival of a business, among other things, depends on the quality of decisions made by its management. Effective decision- making is situational-dependent (Adu-brobbey & Adentwi, 2015). Circumstances often dictate the type and the nature of the decisions that should be made in a particular period. Therefore, construction firms using a step-by-step decision-making process can help them make more deliberate, thoughtful decisions by organizing relevant information and defining alternatives.

Decision-making is crucial because poorly made bidding decisions could cause severe and irrevocable problems. For example, not bidding a favorable project could result in lost opportunities for companies to make profit, improve contractor's strength in the industry and gain a long-term relationship with a new client. On the other hand, bidding a project that actually does not fit the company's profile requires a lot of time, effort, and commitment without a favorable outcome (Ahmad 1990, Wanous et al. 2003). In today's competitive business environment, bid or no bid decision is complex and crucial for construction companies. The complexity comes from the consideration of many intangible and tangible factors in the decision-making process (Mohanty 1992). The decision-making is hard because it requires from a decision-maker to construct a structured thinking in accordance to include many unknown, yet complex variables and compare them at the same time.

According to Hanák, Drozdová and Marovic´ (2021), bid/no bid decisions are simultaneously important and difficult for construction contractors. On one hand, contractors have to search for projects for which they can submit a bid in order to stay in the market. On the other hand, it is not desirable to bid on all available projects; instead, it is highly important to select only those tenders that are suitable for the company. The decision to a bid could result in three outcomes, that is: rejection to bid, provisionally acceptance (includes adding the project to a reserve list or replacing it with the current project), and unconditionally acceptance of the tender (Lowe & Parvar 2004). Shash (1993) separates the bidding process into two different decision phases. The first decision includes whether or not to bid a project and the next decision is the preparation of the bidding price. Drawing the attention to the significance of a new project, Lin & Chen (2004) portrayed it as the "lifeblood" of a company and advised that formulating a proposal for a large project

should be considered as a new project by itself for companies. Also, the existence of companies is depending on how they handle different bidding situations (Wanous et al. 2003). In the selection of a project, many multidimensional reasons should be taken into accounts such as financial, technological and availability of human resources. According to Mohanty (1992), while making a decision for a project, profitability, feasibility, optimal-resources and desirability of the project should be investigated.

2.3.1 Factors that Affect Contractors' Decision to Bid

The significance of a contractor's decision to tender arises from its financial consequences as the decision implies incurring of substantial costs, which may not be recovered immediately (Shash, 1993). Likewise, Harris and McCaffer (2001) disclosed that tendering creates a higher front-end cost, which can lead to increased overheads for an unsuccessful contractor. While acknowledging the complexity and dynamism of tendering decisions, Lowe and Parvar (2004) submit that it is very fundamental to a contractor's commercial strategies as the success or failure of a contractor's business lies in the outcome derived from such a decision. Lowe and Parvar (2004) suggest that though few contractors will actually decline an invitation to tender, there is still the need to make a corporate policy decision on whether to submit a bona fid tender or not. Lowe and Parvar stress that this decision is extremely important to the contractor as, besides the resources committed, the preparation of a bona fide tender commits the contractor to some expenditures, which is only recovered if the tender is successful.

Construction companies knowing the importance of the factors influencing the decision-making process would allow key and major decisions to be reviewed and discussed regularly (Lifson & Shaifer, 1982). The management of contracting organizations are

expected to make firm decisions on bidding to achieve the long-term objectives of the organization. The decision whether or not to tender for a project is a strategic decision requiring the consideration of the strategic intent, competency acquisition and long-term aim and objective of the contracting organization (Lowe & Parvar, 2004). Few researchers and authors have highlighted the factors that affect contractors' decisions to bid for construction contracts.

A study by Shash (1993) conducted among top UK contractors identified the need for work; number of competitors; contractor's experience in the project; current workload, client's identity; project type; project size; tendering method; risk; and project location among other factors as the main factors considered in tendering decision. In a survey of tendering practices in Australian construction industry by Fayek et al (1998), it was found that the significant factors in contractors' decision to bid include: type of project; availability of resources; contractor's experience; need for work ; location of project; future opportunity with client; contract value; contractor's strength in the industry; and strategic value of the project. A similar study by Fayek et al. (1999) among Canadian civil engineering contractors identify type of project, likelihood of winning project, desire for project, familiarity with market, size of project, familiarity with geographical area, and company's strength in the industry as major factors influencing contractors' decision to tender.

A study conducted by Kissi, Adjei-Kumi, Badu and Boateng, (2017) on factors affecting tender price in the Ghanaian construction industry revealed that cultural attributes, client attributes, contractor attributes; contract procedures and procurement methods; consultant and design team; external factors and market conditions; project attributes; sustainable

and technological attributes; and TPI have a positive influence on tender decision and price, Conducting an evaluation of tendering practices in the Nigerian construction industry, Yusif and Odeyinka (2000) consider the factors influencing contractors' decision to bid for a job to include resource availability, type, size, location of job, value of main- contract and sub-contract, number of potential competitors, client type and past payment records of client, time allowed in tender and assessment of risk involved.

Chen et al. (2015) looked at how a contractor's "risk perception and risk propensity" influenced the bidding decision. It was found that there existed a significant negative relationship between "risk perception" of the decision maker and the decision to bid. On the other hand, there existed a significant positive relationship between "risk propensity" of the decision maker and the decision to bid. "Risk perception and risk propensity" were affected by the decision makers' experiences in the outcome of their decisions. In Australia, Fayek et al. (1998) conducted a questionnaire survey to investigate the bidding practices adopted by Australian contractors. The results of the survey showed that the five most important factors affecting the bidding decisions were "project type", availability of resources and people, experience, need for work, and "location of project". Further, based on the results, it was found that most of the bidding practices were subjective and relied on experienced-based judgment. Moreover, the assessment of competitors was always performed in an informal manner, without any objective references to historical data.

In Canada, Fayek et al. (1999) identified 118 factors affecting the bidding decision. These factors were grouped under 12 categories. In this study, the bidding decision comprised four elements of bidding, including the decision to bid, the risk allowance, the opportunity allowance, and the markup size. The findings of the study indicated that the five most

significant factors were type of project, potential profit from project, experience on similar projects, familiarity with market, and size of project. In Saudi Arabia, Bageis and Fortune (2009) found the most significant factors influencing the bidding decision to be "the client financial capacity, prompt payment habit of the client, the project payment system, "clarity of the work and specifications, and project cash flow.

Similarly, Harris and McCaffer (2001) noted that the decision to bid is based on such factors as: company's current workload, turnover and recovery of overheads; company's financial resources; availability of resources to undertake the work; type of work; location of the contract; identity of the client or promoter and their representatives; and detailed examination of the contract documents. In a summary of reports of other authors, Lowe and Parvar (2004) highlight the discernible features in assessing decision to tender include; company's objectives and policies; contract conditions/details; workload; type of work; resource availability; tender documentation; cost of preparing tender; contract size; project location; and the contract buyer or client. According to survey findings of contracting firms in Northern Cyprus, Egemen and Mohamed (2007) highlighted a number of other factors to some of the other abovementioned factors, and they include the following: the completeness of the bid document, risk due to current inflation, exchange rate in the country, stability of the exchange rate, policies and legislation regarding licenses, permits and tax policy of the government in the country, threat due to new entrant into the market increasing competitiveness, monetary and fiscal policies of the government against economic fluctuations, to mention but a few.

In Qatar, Jarkas et al. (2013) conducted a study that identified ten critical factors, including "previous experience with the employer", "the need for work", "current workload", "past

experience in similar projects", "the size of project", "reputation and identity of the employer in the industry", "employer financial stability", "availability of other projects", "the swiftness of the employer in the payment process", and "the quality level of tender documents". In Palestine, Enshassi et al. (2010) investigated factors affecting the bidders' decisions to bid or not. Overall, 78 factors were identified from a literature review. These factors were ranked according to their degree of impact on the contractors' decisions. It was concluded that the most critical factors were contractors' financial capability, owners' financial capability, the project values (financial), "the due date of the payments", "the availability of construction materials in local markets", and "the stability of the construction industry".

Another study by Shokri-Ghasabeh and Chileshe (2016) in Australia determined that the highly significant factors influencing the bid/no-bid decision were client financial capability, project risk, and project future benefits, profitability, and number of competitors/bidders. The least significant factors, on the other hand, were contractor's financial situation, project duration and contractors' material availability. On the basis of the above review of the literature it can be concluded that the critical factors affecting contractors' bidding decisions in construction projects share similarities in several aspects, such as the need for work, experience, type of job, size of job and location.

2.3.2 Importance of the bid/no-bid decision making process

Decisions regarding whether or not to bid for a project are of extreme importance, since they affect not only the daily operations but also the long-term results of the firm (Ahmad, I., 1990). Several factors have a direct influence in the bidding decision and should be considered in the decision process. While considering an opportunity, managers usually

investigate the following features: alignment of the opportunity to the organization's objectives and policies, contractor's need for work, current workload, resources availability, market conditions, competition, capability to perform the contract, contractual and financial conditions, type and size of the project, project location, bid preparation costs and relationship with the client (Lowe & Parvar, 2004).

From one side, bidding for inappropriate projects could result in financial losses, time consuming and wastage of resources, which could be invested in projects that are more advantageous. Additionally, some authors emphasize that 'submitting a lot of non-winning proposals in response to requests for proposals (RFP) can damage a contractor's reputation' (Lin & Chen, 2004). Furthermore, the growth and success of the company can be negatively impacted by projects that are not aligned with the company's strategic goals. Additionally, since the bidding process involves the commitment of bid preparation costs, which are estimated at approximately 1% of the project contract amount for each proposal submitted, contractors need to be more selective in choosing the projects they should bid for in order to avoid dissipating energy in preparing a losing bid (Lowe & Parvar, 2004). However, from the other side, deciding not to bid for the right project could also represent a missed opportunity for making profit, strengthening position in the market and establishing a strategic relationship with a client (Wanous et al, 2003).

On one hand, bid/no-bid analysis seems difficult to be performed provided the uncertainty level caused by the scarce information available in the earlier phases of the project combined with the limited time space (Wanous et al, 2003). Additionally, in the early phases of the project the risk exposure is highest and the impacts of all possible risks are

difficult to measure (Caron et al, 2007). Han and Diekmann (2001) claimed that 'go/no-go decision model entails a dynamic multi-stage decisions process and a highly complicated relationship among the risk variables' (2001b, pp.768). In addition, the bidding phase is frequently mentioned as unstructured, fragmented and rudimentary, being even overlooked in many cases (Caron et al 2007). The bidder is usually not very clear on which rational basis the decision should be made and the identification of the factors that create these bases is difficult and time- consuming (Ahmad, 1990). Ahmad highlights that bidding decisions are usually made in a subjective way, lacking reasonable basis, which can lead to mistakes and, consequently, result in losses to the organization and affect negatively the industry (Ahmad, 1990). Ahmad also observed that, 'the usual practice is to make bid decisions on the basis of intuition derived from a mixture of gut feelings, experience, and guesses.

On the other hand, even experienced contractors recognize that the complexity of the problem claims for a better technique for arriving at bid decisions (Ahmad, 1990). Changes in the competitive environment are leading companies to modify their behavior in order to pursue a more structured method of determining the attractiveness of a specific project (Caron et al 2007). Considering the subjective nature of bid/no-bid decisions, a structured approach would help not only in combining the subjective evaluations in a meaningful way but also in reducing the chances of having overlooked factors (Ahmad, 1990). Additionally, as claimed by Lowe and Parvar (2004), 'a suitable decision support model can be a strategic tool in determining the most appropriate projects to seek and for which to submit a bid'.

Accordingly, it is essential for a contracting organization to develop successful strategies to deal with bidding situations. These strategies are based on the ability of filtering out inappropriate bid opportunities and focusing on opportunities that, if successful, will add value to the company (Lin & Chen, 2004). It is claimed by Han et al that the chances to decide for viable projects are increased if the company has structured tools, which serve as a guide for systematical analysis of critical factors and their impact in the project feasibility (Han et al, 2004). The following section will present the main models published in the literature concerning bid/no-bid decision tools.

2.4 Challenges Contractors Face When Submitting Bids for Projects

A challenged is defined as being faced with something that needs mental or physical effort in order to succeed and therefore tests one's ability (Cambridge English Dictionary, 2016). A challenge, is any inhibiting factor against the smooth implementation of an activity Ofori, (1998) specified that contractors are often left wondering how to find the right bidding opportunities and craft a compelling proposal to increase their chances of winning the bid. This article will discuss a few common bidding challenges experienced by contractors

Invitation of bidders to compete for the tenders poses challenges to construction companies. In order to establish which bids, meet the employer's requirements in the tendering process, bid evaluation is used. The winner should meet all the minimum evaluation criteria stipulated in the bidding document. Challenges facing local Contractors in the bidding process could be established when upon submission of bids and as the result of the subsequent bid evaluation process; it becomes so difficult for all or some of the bidders to meet all of the employer's requirements. There are challenges due to

commercial requirement and technical ones. These challenges or barriers should be overcome by any bidder to qualify for (Jung, et al 2019).

Inuwa, Wanyona and Diang'a (2014) identified 22 factors troubling the indigenous contractors in the Nigerian Construction Industry in their procurement efforts and ranked them. The categorization is after an intensive literature search, questionnaire administration and interview sessions in the northern states. The authors argue that these challenges emanate from the clients, consultants and contractors. The factors that ranked 1^{st} to 5^{th} are lateness in honoring payment certificates, variations, technical incompetence, design deficiencies and material shortage. The issue of funding and prompt payment has continually been a challenge in the procurement of infrastructure in developing nations as opposed to developed nations where funding for infrastructure is available before the procurement process is initiated. Variation and design deficiencies introduce changes to projects, which sometimes cause delays and cost increment. The impact may be mitigated by the procurement method adopted and the payment regime.

The lack of strategies in negotiation contributes to some construction firms finding it difficult to win bids. Managerial skill is a key to the growth of a businesses since decisions that affect growth rest on the owners or managers. To win bids, managers need the strategies to negotiate since the decision-making process of small construction firms has greater discretion than the large organization; and for this reason, leadership of a construction firm has a strong impact on the firm's behavior and results (Koryak et al., 2015). The success of any business entity depends on, to a large extent, the ability to manage the available resources (Alimo, 2015). Good managerial skills in any organization may improve productivity and efficiency. Also, it may bring increased profits and

economic growth. Owners and managers of construction firms normally make strategic decisions based on informal planning for projects rather than involving the whole organization (Mazzarol et al., 2014). The growth of a firm requires action and leadership capabilities to risk and adapt quickly to change (Mazzarol et al., 2014). The growth of a firm depends on leadership that makes use of opportunities to bring changes that will improve competitiveness and differences in a chosen market (Mazzarol et al., 2014).

Lack technological resources is a challenged that affects the bidding process of construction firms. Bids are awarded to businesses with modern technology for efficient work because technology plays a significant role in the success of every business, including construction contracting firms (Oluwaseun, Opeyemi, & Oluwaseun, 2016). Companies may not be able to embark on innovation without technology (Oluwaseun et al., 2016). Because of the stiff competition in the business environment, it may be difficult for construction firms without recent technical apparatus to survive and compete other construction firms who have technology (Oluwaseun et al., 2016).

Also, Mohammad, Adamu and Ladi (2015) acknowledge that the problems affecting construction procurement in Nigeria are kidnappings, vandalism, civil unrests, and other factors that have increased the risks associated with the construction process. The study further identified that lack of the knowledge and working processes of the Public Procurement Act, refusal to comply by some individuals, political influence, administrative bottlenecks, and knowledge gap in terms of the variety of procurement options available are common challenges. Musanzikwa (2013) identified the following as the challenges of public procurement in Zimbabwe; Delays in project implementation, corruption, indigenization policy, incompetence, inadequate market enquiry and political

influence and proposed that these challenges can be mitigated by adoption of professional procurement practice, training of procurement officers and staff, transparency and the decentralization of the process. The various form of challenges is described in the following sub-sections:

2.4.1 Inadequate knowledge of practitioners of procurement methods

According to Ogunsanya, Aigbavboa and Thwala, (2016) contractors usually used the traditional, direct labor, labor only and design and build methods but with limited knowledge in the newer forms of procurement such as Public Private Partnership, Collaborative Frameworks, Strategic Alliances and Concessions. This is indicative of the knowledge level of professional who are in the position to influence the Clients in choosing the most appropriate procurement route for the unique circumstance of their project. This position is supported by Rwelamila (2012) that lack of knowledge by professionals in a broad sense of the available procurement options is one of the challenges of project bidding success.

2.4.2 Unstable economic environment

A study by Ogunsanya, Aigbavboa and Thwala, (2016) brought to light that in recent times, the economy of many nations has experienced a heavy knock from falling oil prices. This situation has had its toll on exchange rates and inflations rates. The cost of materials has doubled due to these events. This has affected the procurement deliveries, as benchmarks used for determining prices are no longer realistic. The respondents complained about the ease of access to funds from financial institutions. Though the Central Bank has managed to keep official interest rate at 11% the lowest in the past

7years, Loans from banks are only available at 17.9% at the minimum. All these have consequences for construction procurement in an import driven economy like Nigeria.

2.4.3 Political influence

Award of infrastructure contracts according the Ogunsanya, Aigbavboa and Thwala, (2016) is to be given to most responsive bidder. This does not necessarily mean the lowest bidder in terms of cost but the bidder that will offer the best value for the funds expended on the project after going through a process of pre-qualification and tendering. Difficulties arise when these rules are blatantly disregarded because of political considerations or filial relationships.

2.4.4 Project uncertainties and difficulty with the bid package and responding to the bid effectively

Even when all project management priorities have been put in place, there is still attendant risks of the project overrunning the target cost, delays due to unforeseen circumstances, parties breaching the contract and contractors compromising on quality. Projects have inherent challenge of risks due to their nature. They are temporary and unique endeavors to bring about change. No two projects are entirely the same (Lowe & Parvar, 2004).

Moreover, the bid package is a critical part of the bidding process. The bid package contains all the information necessary for a contractor to respond to a bid invitation including pertinent documents which include a letter explaining the solicitation (i.e., due date, how to meet eligibility requirements), project specifications, and other important files (Lowe & Parvar, 2004). The key is to comply with all bid package requirements to avoid disqualification from the bidding process. If you are disqualified, there may be an opportunity to amend and resubmit the package. It can be disappointing to put effort into

drafting a proposal only to have it rejected. Drafting a response to a solicitation requires a good understanding of the government's requirements and the ability to effectively promote your own skills and expertise to convey that you are best suited for the job. Zone in on what the client wants and demonstrate your understanding of their needs and how you plan to deliver. Demonstrate your plan in areas such as the scope of work summary, the development of a comprehensive project timeline, and the cost breakdown and overall pricing (Shash, 1993)

2.4.5 Bidding on the wrong jobs

Some contractors find themselves applying for any job they can find and undercutting their services to stay competitive. This bad cycle results in either low-paying jobs or a low bid-to-win ratio. While reviewing a bid package, if it is incomplete, unrealistic, or does not match your skill set or business in general, do not waste time on the bid. Focus your efforts on bids that are high quality, profitable, and manageable. Break the cycle of bid failure by pursuing every bid with a critical eye. Winning a bid but not having the wherewithal to adequately handle the requirements or finding out that the bid is not as profitable as you thought will only cost you money in the long run (Fayek et al, 1998).

2.4.5 Miscommunication problems and purchasing difficulties

According to Shash (1993), Clients sometimes fail to communicate their expectations clearly to contractors. Maybe the contractor has a decentralized approach to managing their supply chain that is lead to shipping delays, under-performing customer service, or the wrong product being ordered. It does not matter if the project is a kitchen remodel or a new multi-million-dollar civic centre; without transparency and complete information, a construction projects in danger.

Additionally, Shash (1993) specified that construction is a complex and sometimes-messy business. A firm's team might have the occasional need for a one-off buy at your local hardware shop or even on the site itself. Without a well-developed supply chain and clear best practices for purchasing and inventory management, your staff could be overspending, double-buying, or purchasing outside the project's requirements, creating even **more** expense via replacement costs and lost time. Preserving profitability requires strategic spending. Cloud-based, centralized procurement software gives construction professionals a convenient way to buy online from their phones and tablets, whether they are onsite or in the office. They can request approval for one-off purchases easily, and even add new vendors for review. You can leverage existing agreements with vendors to preserve important relationships and ensure you pay the lowest possible price for on-time delivery of the best goods and services whenever possible.

2.4.6 Lack of flexibility

In addition to a certain tolerance for complexity, construction requires a measure of adaptability. Codes change, client requirements evolve, weather events can create costly delays. Labor shortages or strikes can cripple even the best-laid plans. Machine learning built into procurement software solutions can help roll with the punches. Rather than being trapped within the confines of an initial bid and scrambling to meet the timetable and budget, you can use project data to collaborate with your clients and suppliers to adjust deadlines, renegotiate contract terms, and create new relationships to ensure the project gets finished while keeping costs low and value high (Lowe & Parvar, 2004).

2.4.7 Incomplete bids

This happens when not all requested documents have been provided; all requested prices have not been submitted, e.g. separate, itemized, unit or alternate prices missing or not properly filled out. Sub-trade list is missing or inadequate, bid bond missing from bid, surety's consent missing from bid and receipt of addenda not acknowledged. Flawed Bids and occurs when bids are not signed or sealed properly and mathematical errors in (Shash, 1993).

2.5 Strategies for Addressing Challenges Facing Contractors in Bid Submission

O'Brien et al. (2014) mentioned that winning a bid requires a lot of time and effort. Mistakes can lead to missing out on a prized project. Contractors are therefore encouraged to spend time familiarizing themselves with the bidding process and equipping themselves with the right knowledge and tools to help them win more bids. As contractor, ensuring your firm has a centralized and comprehensive procurement solution will reduce confusion and consternation. You will be able to evaluate and streamline your supply chain to combat rogue spending, keep all stakeholders up-to-date (and collaborate instantly) with mobile access to contract documents, framework agreements, and spend data for every aspect of the project, and keep your timetable humming with automated approvals. You can also collect, analyze, and use your past performance data to create informative and targeted reports highlighting your certifications, industry-specific experience, safety record, customer satisfaction ratings, and cost-effectiveness when bidding for jobs. This can make it easier to under-promise and over-deliver for your clients. You may even discover untapped opportunities to bid in areas you had not previously considered (O"Brien et al., 2014).

Beyond one-off purchases, procurement software can also help you minimize the need for one-off purchases through strategic and effective two-stage sub-contractor and supplier pre-qualification (Ofori, 1998). Approving purchases from pre-approved vendors through your procurement system will help support full transparency of spend data. Requiring contractors to meet full project requirements before submitting a bid will reduce risk from day one and make it easier to track and evaluate performance. Best-value source selection. Beyond price, suppliers should be evaluated for the value they generate for the project and your company as you complete it. Bottom-basement prices are no bargain if the supplier cannot be relied upon for timely shipments or fails to meet basic safety requirements. Procurement software lets you track vendor performance over time and develop a picture of the value they provide (Ofori, 1998).

Ogunsanya et al. (2016) indicated that construction firms should communicate all aspect of the bidding process to help solve the problem of misinformation. This can be done by having a project leader to oversee an integrated design and construction process and communicate feedback throughout the project. Use communications tools (one-on-one, online Q & A's, forms, clear response times). Again, contractors can start with a clear scope of work and clear documentation and ensure an integrated design and construction process.

Again, contractors should keep submission requirements simple and minimal, only ask for what they intend to evaluate and provide for later submission of all else. Define the mandatory requirements for compliance narrowly and spell out the consequences of non-compliance clearly. Focus on those requirements required to establish a clear contact as well as focusing on those requirements that mitigate the potential for bid manipulation. In

addition, construction companies should focus on the broader notion of fairness, e.g. write fair rules and enforce them uniformly (Kissi, et al., 2017).

The strengths of contractors during bidding ranged from negotiation skills, through estimating and pricing to having good industry knowledge and networking skills and a well-organized mentoring scheme for trainees. Further improvements needed in the Quantity Surveying services to enhance their value delivery and long-term viability included engaging in lifelong learning, having a diversified portfolio of services, engaging in joint ventures, and partnering with foreign firms to explore foreign markets (Ogunsanya et al., 2016).

2.6 Theoretical Review

The main theories used to guide this study include the game theory and utility theory. These theories were selected for the study because of their practicability in the field of bedding decision in construction.

2.6.1 Game theory

Game theory is largely attributed to the work of mathematician John von Neumann and economist Oskar Morgenstern in the 1940s and was developed extensively by many other researchers and scholars in the 1950s. Brams (2015) indicated that the game theory, branch of applied mathematics that provides tools for analyzing situations in which parties, called players, make decisions that are interdependent. This interdependence causes each player to consider the other player's possible decisions, or strategies, in formulating strategy. A solution to a game describes the optimal decisions of the players, who may have similar, opposed, or mixed interests, and the outcomes that may result from these decisions. According to O' Regan (2005), the game theory is the study and analysis of

strategic behavior in social interactions among decision makers. Some of the many social interactions analyzed using game theory include, but are not limited to, strategic voting, research and development decisions, pricing strategies, and of course, auctions.

In a public sale 'Game' there are two groups of "players" the bidders and the suppliers. There may be one or more of each. These groups compete against each other as well as among themselves. That is to say, bidders compete not only with sellers but also with other bidders (to win the auction). Similarly, sellers compete with each other for business and interest from potential bidders. Both of these groups have different decisions to make and, therefore, different strategies are available to them (O' Regan, 2005). Sellers must decide the price at which to start the bidding, what time the auction will start, how long the auction will last, and certain other rules for bidding. Some of the strategic options available to them include setting a low starting price versus setting a high starting price or setting a high bid increment versus setting a low bid increment. Some of the decisions bidders must make include when to bid on an item, and how much to bid for it. The strategic options available to bidders include, but are not limited to, submitting a first bid early versus submitting a first bid late and submitting a low first bid versus submitting a high first bid. Different combinations of seller and bidder strategies may result in different payoffs for each individual involved (O' Regan, 2005)

The game theory is the analysis of problems involving the interactions of rational agents. In a zero-sum game such as tendering, where the winner takes all, this assumes that the competitors adopt the most profitable counter-strategy and the selection of the best defensive measures (Kohler, 1982) and that game theory applies when the outcome of the behavior of firms and individuals does not depend on their own actions alone nor those combined by chance, but also on the actions of others who sometimes oppose, sometimes

fortify those of the former. These basic assumption in game theory is that "each player is assumed to have a known payoff function, which depends on the strategy selected by that player and the strategy selected by the other players (Carr, 1982)) and conscious conflict is an absolute requirement for game theory to apply Funderberg and Tirole (1989) in one of the more formal recent statements of game theory stated that it is based on "the assumption that his opponents are themselves rational, and are thus trying to make their own predictions and to maximize their own payoff" and that any predictions that are inconsistent with this presumed but vaguely specified rationality are rejected.

Game theory requires that all players consider their respective strategies and select the most appropriate strategy assuming that all other players do the same. It does not apply to a situation where one player alone is allowed to adopt a preferred strategy without any attempts from other players to modify their strategies in response. The assumption in tendering theory that there is no response, no modification of the behavior of other players violates the most fundamental assumption of game theory." There are a very small number of bidding studies in construction using a game theoretic approach (Benjamin, 1969); Griffis (1971). Among these few studies, Kim and Reinschmidt (2006) simulated competition among multiple contractors to represent (re)actions and interactions among contractors in an assumed market by allowing individual contractors to control their markup levels depending on their own conditions based on common decision rules. In the model by Kim and Reinschmidt (2006), a contractor can enhance its marketing efforts or lower its markup level to obtain more jobs and also can increase its capacity to perform the increased volume of jobs obtained *and vice versa*, depending on market conditions or an individual firm's own short/long-term strategy (i.e., in the responses to demand change in the market as well as to strategic deviation by competitors). Three important managerial functions (marketing function, markup control, and capacity control) are integrated for

individual firms' responses which are made to keep their own balance between workload and capacity. In addition, firms' growth and contraction are represented in the model by the capacity control, which has not been considered in previous competitive bidding models. This study provides a comprehensive market perspective on the competition among contractors and dynamics in a market, and considerations of different long-term and short-term competitive strategies (Kim & Reinschmidt, 2006).

2.6.2 Utility Theory

Utility theory is based on this assumption of rationality and describes all decision outcomes (financial and otherwise) in terms of the utility (or value) placed on them by individuals. Within this framework, decisions can be understood in terms of rationally ordered levels of utility attached to different outcomes. The difficulty of competitive bidding is to bid low enough to win the contract but high enough to make a profit. There are many variables that affect the contractor's decision to bid or not to bid, and how each much to bid. Bidding models have been developed to assist a contractor to determine a bid decision that is the maximum expected value or minimum acceptable price.

An expected utility value is attained for a newly tendered project and is associated to a bidding utility function to obtain a bidding decision. This bidding theory permits a contractor to customize each utility function to meet their requirements and satisfy their preferences. Utility theory has been applied to construction bidding by Ahmad and Minkarah (1997) that determines a bidding for a competitive bidding environment using multidimensional utility theory. The model divides bidding into three separate categories; overhead, loss, and profit. Each category is then described by a separate unidimensional utility function which are curve. The single utility curve is integrated over probability distributions to derive a final expected utility curve where the maximum utility value

provides the bidding decision. This model is difficult to apply to the real-world bidding environment because numerous factors are required to develop the exponential utility curves.

2.6.2.1 Completeness

Individuals can rank order all possible bundles. Rank ordering implies that the theory assumes that, no matter how many combinations of consumption bundles are placed in front of the individual, each individual can always rank them in some order based on preferences. This, in turn, means that individuals can somehow compare any bundle with any other bundle and rank them in order of the satisfaction each bundle provides. So in our example, half a week of food and clothing can be compared to one week of food alone, one week of clothing alone, or any such combination. Mathematically, this property wherein an individual's preferences enable him or her to compare any given bundle with any other bundle is called the completeness property of preferences.

More-is-better: Assume an individual prefers consumption of bundle A of goods to bundle B. Then he is offered another bundle, which contains more of everything in bundle A, that is, the new bundle is represented by αA where $\alpha = 1$. The more-is-better assumption says that individuals prefer αA to A, which in turn is preferred to B, but also A itself. For our example, if one week of food is preferred to one week of clothing, then two weeks of food is a preferred package to one week of food. Mathematically, the more-is-better assumption is called the monotonicity assumption on preferences. One can always argue that this assumption breaks down frequently. It is not difficult to imagine that a person whose stomach is full would turn down additional food. However, this situation is easily resolved. Suppose the individual is given the option of disposing of the additional food to another person or charity of his or her choice. In this case, the person will still prefer more food

even if he or she has eaten enough. Thus, under the monotonicity assumption, a hidden property allows costless disposal of excess quantities of any bundle (Anton, 2020).

2.6.2.2 Mix-is-better

Suppose an individual is indifferent to the choice between one week of clothing alone and one week of food. Thus, either choice by itself is not preferred over the other. The "mix-is-better" assumption about preferences says that a mix of the two, say half-week of food mixed with half-week of clothing, will be preferred to both stand-alone choices. Thus, a glass of milk mixed with Milo (Nestlè's drink mix), will be preferred to milk or Milo alone. The mix-is-better assumption is called the "convexity" assumption on preferences, that is, preferences are convex ((Anton, 2020).

Rationality: This is the most important and controversial assumption that underlies all of utility theory. Under the assumption of rationality, individuals' preferences avoid any kind of circularity; that is, if bundle A is preferred to B, and bundle B is preferred to C, then A is also preferred to C. Under no circumstances will the individual prefer C to A. You can likely see why this assumption is controversial. It assumes that the innate preferences (rank orderings of bundles of goods) are fixed, regardless of the context and time (Anton, 2020). Whenever these four assumptions are satisfied, then the preferences of the individual can be represented by a well-behaved utility function. The assumption of convexity of preferences is not required for a utility function representation of an individual's preferences to exist. But it is necessary if we want that function to be well behaved. Note that the assumptions lead to "a" function, not "the" function. Therefore, the way that individuals represent preferences under a particular utility function may not be unique. Well-behaved utility functions explain why any comparison of individual people's utility functions may be a futile exercise (and the notion of cardinal utility misleading).

Nonetheless, utility functions are valuable tools for representing the preferences of an individual, provided the four assumptions stated above are satisfied (Anton, 2020). Utility model rests upon the idea that people behave as if they make decisions by assigning imaginary utility values to the original monetary values. The decision maker sees different levels of monetary values, translates these values into different, hypothetical terms ("utils"), processes the decision in utility terms (not in wealth terms), and translates the result back to monetary terms.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The focus of this chapter is to discuss the methodology employed in the study. Specifically, the chapter looks at: research design, population, sample technique and sample size, data collection instruments, data collection procedure and the data analysis.

3.2 Research Design

Kothari (2004) defined research design as the conceptual structure within which research is conducted. It constitutes the blueprint for the collection, measurement and analysis of data. According to Burns and Groove (2009), the design of a study is the end result of a series of decisions made by the researcher concerning how the study will be conducted. To meet the objectives of this study, a cross sectional survey design was used.

Though only one District is used for this study, the participants used for this research can be said to be members of the larger group 'Ghanaian construction firms'. This gives a fair generalization of what is going on in the site under study as well as all construction firms across the country. The research strategy employed was quantitative enabling a quantitative analysis of the field data obtained through the administration of survey questionnaires.

3.3 The Target Population of the Study

A study population comprises all individuals and entities existing in a setting with similar characteristics (Creswell, 2000). The target population of the study comprised construction professionals (construction managers, quantity surveyors, site supervisors,

bidding officers, estimators and site engineers) employed by construction firms in the South Tongu District. These categories of construction professionals have requisite knowledge about bidding procedures within their respective construction companies.

3.4 Sampling Techniques and Sample Size

A study sample comprises a selected portion of a larger population considered qualified to provide opinions and facts on a subject of study whilst sampling technique refers to the methods used to select a study sample (Harish, 2021). In a convenient sample of a given size, all such subsets of the frame are given equal chance (Starman, 2013). Also, any given pair of elements has the same chance of selection as any other such pair. This minimizes bias and simplifies analysis of result. This technique was chosen because it reduces the potential for human bias in the selection of cases to be included in the sample. As a result, the convenient sampling techniques provided the researcher with a sample that is highly representative of the population being studied. Also, since the units selected for inclusion in the sample were chosen using probabilistic method, convenient sampling allowed the researcher to make generalizations from the sample to the population. This was major advantage because such generalizations were more likely to be considered to have external validity. The study used convenient sampling to select a sample size of seventy-five (75) respondents comprising eighteen (18) construction managers, ten (10) site supervisors, twelve (12) quantity surveyors, twelve (12) estimators, twelve (12) bidding officers and eleven (11) site engineers who were involved in bidding processes for the study.

3.4 Data Collection Instrument

Questionnaires were used to gather primary data for the study, because the study assumes that these groups of people are literate and can therefore read, understand and also answer

the items on the questionnaire accordingly. According to Creswell, (2002), a questionnaire is a research instrument that contains a variety or series of statements that are used for the purpose of collecting information. The purposes of questionnaire are to; collect the appropriate data, make data comparable and amenable to analyze, minimize bias in formulating and asking questions, and to make questions engaging and varied. Questionnaire was chosen because it can be used to gather a lot of data in less time, and gives respondents enough time to think before answering questions, as opposed to interviews. Additionally, it results could be quickly and easily quantified by either a researcher or through the use of a software package and could be analyzed more 'scientifically' and objectively than other forms of research.

The questionnaire consisted of four main sections from section A to D. The questions were set based on the three (3) research questions which included closed ended questions on a five-point Likert-type scale (Strongly Disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, and Strongly Agree = 5). Close-ended questionnaires were used because close-ended questions are easy for respondents to answer and it also helps researchers analyze their data easily (Glasow, 2005).

3.5 Data Collection Procedure

The questionnaire was distributed by hand to the respondents in the firms that gave their consent for the study to be conducted. The selected respondents were encouraged to answer all the items in the questionnaire. The researcher paid subsequent visits to the selected construction firms after the initial delivery of the questionnaire. During these visits, completed questionnaires were collected while discussions were held to help

respondents with some difficulties to understand issues raised in the questionnaire. This was repeated until all the answered questionnaire was collected from the participants.

The researcher conducted a pilot study by administering questionnaires among 10 site managers and quantity surveyors in other construction industries which were not selected for the study in the same district. When the questionnaires were collected, they were coded, and entered into the computer for reliability analysis. The measurement of Cronbach alpha reliability coefficient for each of the sections of the instrument showed the following results: Section B (factors affecting contractors' decision to bid) yielded reliability co-efficient of 0.73, Section C, (challenges face by contractors when submitting bids for contract) 0.98, and Section D (strategies for preventing challenges face by contractors in their quest to submit bids for projects) 0.84.

The Cronbach alpha reliability coefficient for the overall instrument was r = 0.83. This was deemed appropriate for the study based on Cohen, Manion, and Morrison's (2017) recommendation that a reliability co-efficient of 0.70 or above is good enough for research purposes. Based on the strong reliability co-efficient of the questionnaires the instrument was accepted as adequate.

3.6 Data Analysis

The data gathered was subjected to critical reviews and analysis. The questionnaires were all coded into the SPSS Version (21) software after which the analysis was undertaken. The study utilized the descriptive statistical techniques such as frequencies and percentages, means and ranking to analyze the data. The results were summarized in appropriate tables to facilitate meaningful interpretation of the results. Intuitively, comparisons were made to further compare salient features with those of similar previous research conducted.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents and analyses the results obtained from the study. It also discusses the results obtained in accordance with the suggested research questions and in relation to existing literature. The chapter is organized into six main sections comprising; an introduction, response rate, demographic characteristics of respondents, factors affecting the bid/no bid decisions of construction firms, challenges facing contractors when submitting bids for projects, and strategies for overcoming challenges to bid submission for projects.

4.2 Response Rate of Questionnaire

The researcher distributed seventy-five (75) questionnaires to the respondents. However, the researcher was able to retrieve 30 questionnaires. Therefore, the response rate achieved was 40%.

4.3 Demographic Characteristics of the Respondents

In this section, the researcher provides data on the demographic characteristics of the respondents. The study collected demographic data on variables such as gender, age, academic qualification and length of years in the construction industry. Table 4.1 below shows the summary of this section.

Table 4.1: Demographic Data of Respondents

Items	Response	Frequency	Percentage (%)
Gender	Male	25	83.3
	Female	5	16.7
	Total	**30**	**100**
Age Group	21–30 years	6	20.0
	31–40 years	18	60.0
	41–50 years	6	20.0
	Total	**30**	**100**
Academic Qualification	Diploma/ HND	6	20.0
	Master's Degree	12	40.0
	Bachelor's Degree	8	26.7
	Ordinary Level/SSCE	4	13.3
	Total	**30**	**100**
Length of service	1–10 years	6	20.0
	11–20 years	10	33.3
	21–30 years	6	20.0
	31–40 years	8	26.7
	Total	**30**	**100**

Source: Researcher's survey (2022)

According to Table 4.1, twenty-five (25) respondents were male representing 83.3% whiles five (5) respondents were female representing 16.7%. This implies that the male respondents dominated the females in this study. The age range of the respondents showed that, six (6) respondents were 21–30 years representing 20%, eighteen (18) respondents representing 60% were 25 to 35 years and six (6) representing 20% of the respondents were 36 to 45 years. Data on academic qualification of the respondents showed that, six (6) respondents representing 20% had HND's, twelve (12) respondents representing 40% had master's degrees, eight (8) respondents representing 26.7% had bachelor's degree whilst four (4) respondents representing 13.3% had Ordinary level/SSCE certificates. This confirms that bidding practices are conducted by senior management and well-educated people (Hassanein, 1996; Lowe & Parvar, 2004). Finally, in this table, six (6) respondents representing 20% had spent 1–10 years in the construction industry; eighteen (18) respondents representing 60% had been with the construction industry for 11 to 20 years and finally, six (6) respondents representing 20% had been with the construction industry for 21 to 30 years.

4.4 Factors Affecting the Bid/No Bid Decisions of Construction Firms

In this section, the researcher presents result on the various issues affecting bid/no bid decision of construction firms in the South Tongu District. Table 4.2 shows the summary of the results.

Table 4.2: Factors Affecting the Bid/No Bid Decisions of Construction Firms

Item	Min	Max	Mean	Rank
Financial capability of the client	4.00	5.00	4.20	1st
Profitability (profit potential)	3.00	5.00	4.16	2nd
Risk involved in investment and Degree of hazard/safety	4.00	4.00	4.00	3rd
Availability of labour/equipment and materials	3.00	5.00	3.86	4th
Chances of obtaining the job	3.00	5.00	3.86	4th
Fulfilling the "to tender" condition	2.00	5.00	3.70	5th
Project size	2.00	4.00	3.53	6th
Location of the project	3.00	4.00	3.50	7th
Sustainable and technological characteristics	1.00	4.00	2.70	8th
Cultural attributes	1.00	4.00	2.66	9th

Source: Researcher's survey (2022)

Table 4.2 shows that respondents ranked financial capability of the client first with a mean score of 4.20, which indicated respondents, consider it to be the most important factor affecting bid/no bid decisions of construction firms in the study area.

The second ranked factor affecting construction firm's decision to bid or not to bid that respondent considered was risk involved in investment and degree of hazard/safety with a mean value of 4.16, which means respondents agreed to the statement as the second most important factor to consider by construction firms on bedding decision. The third, fourth, fifth and sixth ranked factors on whether to bid or not to bid by construction firms of construction firms were risk involved in investment and availability of labour/equipment and materials, chances of obtaining the job, fulfilling the "to tender" condition and project size with mean values of 4.00, 3.86, 3.70 and 3.53 respectively. These factors were

observed to be significantly considered by construction firms in the study area. In addition, location of the project was ranked seventh by respondents with a mean value of 3.50. Finally, sustainable and technological characteristics and cultural attributes were ranked eight and nine with mean values of 2.70 and 2.66 respectively meaning it is the least factor considered.

Based on the results on the table, it is clear that the most significant factors affecting the bid/no bid decisions of construction firms in the study area are financial capability of the client, profitability (profit potential), risk involved in investment and degree of hazard/safety, availability of labour/equipment and materials, chances of obtaining the job and fulfilling the "to tender" condition. This result provide support for previous study by Shokri-Ghasabeh and Chileshe (2016) who found out that the most highly significant factors influencing the bid/no bid decision construction companies in Australia determined were client financial capability, project risk, and project future benefits, profitability, and number of competitors/bidders. However, the least significant factors, in the study of Hokri-Ghasabeh and Chileshe (2016), were contractor's financial situation, which was ranked first in this study, this might be due to setting of this study which is a developing nation as compare to theirs which was also held in a more developed country.

It is also consistent with the observation of, Harris and McCaffer (2001) who noted that the decision to bid is based on such factors as: company's financial resources; availability of resources to undertake the work; type of work; location of the contract; identity of the client or promoter and their representatives; and detailed examination of the contract documents. Palestine et al, (2010) also investigated factors affecting the bidders' decisions to bid or not. Overall, 78 factors were identified from a literature review. These factors were ranked according to their degree of impact on the contractors' decisions. It was

concluded that the most critical factors were contractor's financial capability, owner's financial capability, the project values (financial), "the due date of the payments", "the availability of construction materials in local markets", and "the stability of the construction industry".

4.5 Challenges Facing Contractors when Submitting Bids for Projects

In this part of the study, the researcher presents the data on the second objective of study. This objective sought to find out the challenges face by contractors when submitting bids for contract. Data was summarized in Table 4.3.

Table 4.3: Challenges faced by contractors when submitting bids for contract

Item	Min	Max	Mean	Rank
Inadequate knowledge of practitioners on bidding methods	4.00	5.00	4.50	1st
Corruption	4.00	5.00	4.43	2nd
Insecure economic environment	3.00	5.00	4.16	3rd
Political influence	3.00	5.00	4.14	4th
Bidding on the Wrong Jobs	3.00	5.00	3.86	5th
Lack technological resources	2.00	5.00	3.70	6th
Communication Problem	2.00	5.00	3.53	7th
Project uncertainties	2.00	4.00	3.52	8th
Difficulty with the bid package	3.00	4.00	3.50	9th
Delay in honoring payment certificates	1.00	4.00	2.70	10th
Funding and prompt payment problems	1.00	4.00	2.66	11th
Variation and design deficiencies	1.00	4.00	2.65	12th

Source: Researcher's survey (2022)

Table 4.3 presented twelve (12) challenges face by contractors when submitting bids for contract and how each scaled was ranked. The result indicated clearly that inadequate knowledge of practitioners on bidding methods was ranked first with an overall mean 4.50 this means respondents strongly agreed it is the most worrying challenge that affect their decision to bid for a particular project. This the researcher is of the view that it is not far from the truth, because as a competitive bidder one has to understand the construction and

the bidding process and refine his approach. However, if a bidder really does not understand the bidding methods, then it's a very big challenge.

This finding is consistent with that of Koryak et al. (2015) that suggest that the lack of strategies in negotiation contributes to some construction firms finding it difficult to win bids. The researchers postulated that administrative skill is a key to the development of a businesses since decisions that affect growth rest on the owners or managers. Construction firms to be able to win bids, administrators or procurement officers need to have the strategies to negotiate. It is an undisputable fact that the success of any business entity depends on the ability to manage the available resources, therefore, good managerial skills in any organization may improve productivity and efficiency.

The next statements to follow were corruption, insecure economic environment and political influence having mean values of 4.43, 4.16 and 4.14 this means respondents agreed to these challenges as the worrying problems faced by construction firms in Ghana as a whole and Sogakope in particular. This was closely followed by bidding on the wrong jobs, lack technological resources, communication problem with mean values of 3.86, 3.70, 3.53 in that order. This also imply that respondents agreed that the economic environment of Ghana is not secure for construction companies. Project uncertainties, difficulty with the bid package, delay in honoring payment certificates, funding and prompt payment problems and variation and design deficiencies were ranked 8^{th,} 9th, 10th, 11th and 12th with mean values of 3.52, 3.50, 2.70, 2.66 and 3.65 respectively. The results showed that respondents agreed to the eight and nine ranked challenges. On other hand, respondents were neutral to the tenth, eleventh and twelve ranked challenges.

The results imply that inadequate knowledge of practitioners of bidding methods, corruption, insecure economic environment, political influence, project uncertainties, communication problem and lack of technological resources were the most ranked challenges faced by contractors when submitting bids for contract.

The result is in agreement with the view of Mohammad, Adamu and Ladi (2015) that lack of the knowledge and working processes of the Public Procurement Act, refusal to comply by some individuals, political influence, administrative bottlenecks, and knowledge gap in terms of the variety of procurement options available are common challenges of bidding in Nigeria. Musanzikwa (2013) also identified the following as the challenges of decision to bid in Zimbabwe; delays in project implementation, corruption, indigenization policy, incompetence, inadequate market enquiry and political influence. In their study, Oluwaseun et al. (2016) also identified lack of technological resources as challenged that affects the bidding process of construction firms. Oluwaseun et al. (2016) specified that bids are awarded to businesses with modern technology for efficient work because technology plays a significant role in the success of every business, including construction contracting firms. So, without modern technological apparatus construction companies may not be able to embark on innovative works without technology. Procurement officers and for that matter construction managers in the construction companies should bear in mind, it may be difficult for construction firms without recent technical devices to survive and compete other construction firms who have technology.

4.6 Strategies for Overcoming Challenges Faced by Contractors in Bid Submission

In this section, the researcher presents result on the plans for preventing challenges face by contractors in their effort to submit bids for projects. Table 4.4 was used to present the results.

Table 4.4: Improving contractor's participation in bidding process

Item	Min	Max	Mean	Rank
Acquiring Training on bidding process	4.00	5.00	4.43	1st
The use of technology during bidding	3.00	5.00	4.16	2nd
The use of past performance data	4.00	4.00	4.00	3rd
Meeting all bidding requirements	2.00	5.00	3.70	4th
Having adequate negotiation skills	2.00	4.00	3.53	5th
Communicating feedback throughout the project	2.00	4.00	3.53	5th
Having a faultless certification	3.00	4.00	3.50	6th
Acquiring the right procurement software	1.00	4.00	2.70	7th
Having a centralized and comprehensive procurement solution	1.00	4.00	2.66	8th

Source: Researcher's survey (2022)

Table 4.4 presented results on strategies for preventing the challenges face by contractors in their quest to submit bids for projects in the study area. According to Table 4.4, the first ranked strategy was acquiring training on bidding process with a mean value of 4.43. meaning respondents belief this is the best strategy that can be used to help solve the bidding problem of contractors.

This finding mirrors the perception O'Brien et al. (2014) who perceived that contractor should spend time familiarizing themselves with the bidding process and equipping themselves with the right knowledge and tools to help them win more bids. They continued

that contractor should ensure their firms has a centralized and comprehensive procurement solution to help reduce confusion and anxieties in the bidding process.

From Table 4. 4, the second ranked strategy was the use of technology during bidding with a mean value of 4.16, whereas the third ranked statement was the use of past performance data with a mean value of 4.00. This imply that respondents agreed that these strategies can help solve the problem of bidding of construction firms and also meeting all bidding requirements with mean of 3.70 ranked 4th. This implies that adequate resources should be pulled together to meet the bidding requirements.

There were also some similarities between 5th ranked strategy as having adequate negotiation skills and communicating feedback throughout the project had the same mean values of 3.53 meaning respondents agreed to these items. The 6th and 7th and 8th ranked strategies for preventing challenges face by contractors in their quest to submit bids for projects were having a faultless certification, acquiring the right procurement software and having a centralized and comprehensive procurement solution with means values of 3.50, 2.70 and 2.66 respectively.

Based on the revelations above, it can be concluded that participants for the study perceive that the best strategies that can be used to prevent challenges face by contractors in their quest to bid are; acquisition of training on bidding process, the use of technology, the use of past performance data, during bidding, meeting all bidding requirements, having adequate negotiation skills and communicating feedback throughout the project. The findings support the notion shared by O'Brien et al. (2014) who mentioned that winning a bid requires a lot of time and effort. Additionally, Ogunsanya et al., (2016) specified that the strengths of contractors during bidding ranged from negotiation skills, through

estimating and pricing to having good industrial knowledge and networking skills and a well-organized mentoring scheme for trainees. Further improvements needed in the quantity surveying services to enhance their value delivery and long-term viability included engaging in lifelong learning, having a diversified portfolio of services, engaging in joint ventures, and partnering with foreign firms to explore foreign markets.

Moreover, these observations from the study are in line with the existing literature that maintain that contractors can also collect, analyze, and use their past performance data to create informative and targeted reports highlighting their certifications, industry-specific experience, safety record, customer satisfaction ratings, and cost-effectiveness when bidding for jobs. This can make it easier to under-promise and over-deliver for their customers. With these strategies, contractors may even find out untapped prospects to bid in areas they had not earlier considered (O'Brien et al., 2014).

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of findings, conclusions drawn from the findings, recommendations of the study. This study examined the factors affecting bidding decisions of construction companies in Sogakope in the South Tongu District. The descriptive survey research design was adopted for the study. Using convenient sampling technique, 35 respondents comprising managers, quantity surveyors, site supervisors, bidding officers, estimators and site engineers were selected. Questionnaires were administered to 75 respondents. A total of 30 (40%) questionnaires were returned. The data collected were analysed using the Statistical Package for Social Sciences (SPSS) version 21. Descriptive statistics such as frequency, means, percentages and rankings, were used to analyse the objectives of the study.

5.2 Summary of Findings

This section highlights the main findings of the study based on the objectives. Objective one examined issues that affect contractors' decision to bid, in the South Tongu District. It was found that the most significant factors affecting the bid/no bid decisions of construction firms in the study area are financial capability of the client, profitability (profit potential), risk involved in investment and degree of hazard/safety, availability of labour/equipment and materials, chances of obtaining the job and fulfilling the "to tender" condition.

Objective three sought to find out the challenges contractors face when submitting bids for projects. It came out from the study that inadequate knowledge of practitioners of bidding

methods, corruption, insecure economic environment, political influence, project uncertainties and communication problem were the most ranked challenges face by contractors when submitting bids for contract.

Objective three examined the areas for improvement to allow contractors to participate adequately in the bidding process. It was revealed that the most ranked strategies that can be used to prevent the challenges face by contractors in their quest to bid are; acquisition of training on bidding process, the use of past performance data, the use of technology during bidding, meeting all bidding requirements, having adequate negotiation skills and communicating feedback throughout the project.

5.3 Conclusion

Based on the findings of the study, the researcher reached the following conclusions:

The factors affecting the bid/no bid decisions of construction firms are financial capability of the client, profitability, risk involved in investment and degree of hazard/safety, availability of labour/equipment and materials, chances of obtaining the job and fulfilling the tender conditions. Contractors face a lot of challenges when submitting bids for contract among which are inadequate knowledge of practitioners of bidding methods, corruption, insecure economic environment, political influence, project uncertainties and communication problems.

The challenges face by contractors in their quest to bid can be minimized when contractors acquire training on bidding process and use their past performance data. Contractors can also minimize the problems associated with bidding when they use technology during bidding, meet all bidding requirements, have adequate negotiation skills and communicating feedback throughout the project.

5.4 Recommendations

Based on the findings of the study, the researcher recommends that: the following recommendations are made in order to improve the bidding decisions of construction firms in Sogakope.

- Contractors should spend time acquainting themselves with the bidding process and equipping themselves with the right knowledge and tools to help them win more bids. They should also ensure their firm has a centralized and comprehensive procurement solution to help reduce confusion and consternation.
- Contractors should build their reputations in the construction industry by acquiring technological competencies and capabilities, as these qualities have become important considerations in assessing contractors' completeness and key indicators of successful tendering in construction projects.
- Construction firms in the South Tongu District should organize training on Quantity Surveying for their members especially construction managers to enhance their knowledge in the bidding process.
- Additionally, contractors can also collect, analyze, and use their past performance data to create informative and targeted reports highlighting their certifications, industry-specific experience, safety record, customer satisfaction ratings, and cost-effectiveness when bidding for jobs
- When considering tenders for construction projects, building contractors should give primary attention to the client capability to pay for the work.

5.4 Suggestion for Further Research Work

It is suggested that any further research work on bidding decisions should include all the stakeholders in the construction industry for updated and enlighten information regarding the entire bidding processes for comprehensive execution of the process.

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APPENDIX

UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION, KUMASI

QUESTIONNAIRE

Dear respondent

I am a student of the University of Education, Winneba College of Technology Education, Kumasi; I am conducting a study on FACTORS AFFECTING BIDDING DECISIONS OF CONSTRUCTION FIRMS IN THE SOUTH TONGU DISTRICT. The information required from you is for academic and research purposes. All information provided will be treated as confidential as possible. Please be as objective and brief as possible. I am looking forward to your kind cooperation.

Please tick the [√] appropriately.

Thank you very much.

SECTION A: Demographic Characteristics

1. Please indicate your Gender

a) Male [ ]

b) Female [ ]

2. Please what is your age range?

a) 21–30 years [ ]

b) 31–40 years [ ]

c) 41–50 years [ ]

d) 51–60 years [ ]

e) Above 60 years [ ]

3. Please indicate your highest Academic Qualification

a) Ordinary Level/SSCE [ ]

b) Bachelor's Degree/ Higher National Diploma (HND) [ ]

c) Master's Degree [ ]

d) Doctorate of Philosophy (PhD) [ ]

e) Others, please specify …….

4. Experience in the Construction Work

a) 1–10 years -----[ ]

b) 11–20 years [ ]

c) 21–30 years [ ]

d) 31–40 years [ ]

5. SECTION B: FACTORS AFFECTING THE BID/NO BID DECISIONS OF CONSTRUCTION FIRMS

Indicate your level of Agreement on the following statements by ticking the appropriate number using the key given below

Strongly Disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, and Strongly Agree = 5).

Factors Affecting the Bid/No Bid Decisions	1	2	3	4	5
1) Financial capability of the client					
2) Availability of labor/equipment and materials					
3) Fulfilling the "to tender" condition					
4) Chances of obtaining the job					
5) Risk involved in investment and Degree of hazard/safety					
6) Project size					
7) Profitability (profit potential)					
8) Location of the project					
9) Sustainable and technological characteristics					
10) Cultural attributes					

6. SECTION C: CHALLENGES FACE BY CONTRACTORS WHEN SUBMITTING BIDS FOR CONTRACT

Indicate your level of Agreement on the following statements by ticking the appropriate number using the key given below:

Strongly Disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, and Strongly Agree = 5).

Challenges Face by Contractors When Submitting Bids for Contract	1	2	3	4	5
1) Political influence					
2) Corruption					
3) Insecure economic environment					
4) Inadequate knowledge of practitioners of bidding methods					
5) Project uncertainties					
6) Communication Problem					
7) Delay in honoring payment certificates					
8) Funding and prompt payment problems					
9) Variation and design deficiencies					
10) Difficulty with the bid package.					
11) Responding to the Bid Effectively					
12) Bidding on the Wrong Jobs					

7. SECTION D: STRATEGIES FOR PREVENTING CHALLENGES FACE BY CONTRACTORS IN THEIR QUEST TO SUBMIT BIDS FOR PROJECTS

Indicate your level of Agreement on the following statements by ticking the appropriate number using the key given below:

Strongly Disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, and Strongly Agree = 5).

Strategies For Preventing Challenges	1	2	3	4	5
1) Acquiring Training on bidding process					
2) The use of past performance data					
3) Meeting all bidding requirements					
4) Having adequate negotiation skills					
5) The use of Technology during bidding					
6) Communicating feedback throughout the project					
7) Having a faultless certification					
8) Having a centralized and comprehensive procurement solution					
9) Acquiring the right procurement software					
10) Use of technology					