

# Conceptual Framework Of Bidding Strategy In Order To Improve Construction Project Performance

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**Abstract.** Globalization makes the competition of construction is increasingly tight. The competitors faced not only in the regional district/city, province, but increasingly widespread, even cross the country worldwide. Bidding strategy is an important factor that improves competitiveness. It defines as a management skills of using all available resources both physical and financial, in order to offer a comprehensive and competitive bidding. The bidders usually consider various aspects, including internal, external and environment, with aim to win the bidding competition, and provide maximum project performance. The literature review method is used to create ideas, and synthesize the related researches which have been done previously. This paper aims to develop a framework that can be used for evaluation in the early stages of project selection, based on the review of various literature related to bidding strategies and project performance. The result from the literature review concerning are presented, and a conceptual framework of bidding strategy model is developed.

## Introduction

The competitiveness of an organization is the ability of the company to win the competition. To win the competition required the right strategy. Contractor as the construction company, must build their strategy through increased competitiveness. Many studies on contractors' competitiveness have been carried out. One of the research in Mainland China identifies thirty-five factors that affect the competitiveness of contractors. These factors are divided into eight groups, which determine the success of contractors, such as, project management, organizational structure, organizational resources, competitive strategy, relationship, supply, marketing and technology. Bidding strategy is the most decisive competitiveness factor, for the contractor success [9]. Furthermore [12] mentions that the offered price and construction time are a critical and crucial indicators.

Frame (2002) in [3] states that, selecting projects carefully are the first step to a successful construction company. Therefore, this step must be done well and very thorough. [2] in his research found that, 95% agree the consideration of project selection phase, is very important. Furthermore 89% agree that consideration of this phase, will increase the company's business performance. A Contractor's Survival Guide by Schleifer (1990) in [3] explained that the failure of the contractor was generally caused by several factors, such as increasing the size of the project handled from normal conditions, geographical locations, different types of projects, (for example from government projects to the private sector), labor shortages, failure of operational management, poor accounting system, failure to evaluate the project benefits, equipment cost control, and changes in accounting systems from manual to computer systems.

[11] also states that the failure of the contractor, is caused by inaccuracies information of bidding. It is mentioned that, the failure of the contractor are too low price of bidding, the lack understanding of the project complexity, the lack experience in project type, lack expertise, and the project owner is not cooperative.

Generally there are less attention of contractor on the importance of bidding decision. [6] state according to their respondent feed back, 97,5 % respondent use intuitions as their primary tools to make the bid/no bid decision. Whereas there are complex process of major characteristics of the bidding decision, which involves a large quantity of objectives and are reflected from several internal, external and environment factor. In order to reduce failures in the project handling, and to get project success, the contractor must work through good process from the earliest bidding stages. Therefore, bidding strategy plays an important role and contractor should consider all factors as well, because one of the contractors' failure is caused by inaccurate bidding information.

## Literature References

**Concept of Strategy.** Strategy is a comprehensive action plan that specifies guidance and a critical directions for the allocation of resources to achieve long-term goal of the organization. In practice, the strategy is a complex activity, even a risky activity, as the choice of how managers plan mix with the organization's strength and weaknesses, opportunities and threats in the environment [14]. According to [8], the formulation of corporate strategy is a comprehensive plan of how the companies will achieve its mission and objectives. Male (1991) and Messner (2004) in [7] stated that the strategy is a statement and a choice of several alternative which are feasible and available, to achieve the organizational goal. While Strategic decision are explicit actions developed by management, through the behavior and decision making achieve the goals guiding organizational behavior.

**The Contractor Bidding Strategy.** The main problem for the contractor in bidding is to place a competitive bid. It means that the bid price is not too high with expected high profit. Otherwise bid price is not too low with expected to get larger project opportunities. These two opposite condition of ten accurate at the same time, so it will be difficult for the contractor to determine the right bid price and best offer.

Tarek (2002) in [7] argued that it is quite difficult to decide on suitable bidding strategy against the expected competitors. Basically Bidding strategy is a manifestation of the accuracy calculation of the elements on uncertainty level, associated with the project and allowance for profit. There are two things should be emphasized, in this strategy, first estimating the percentage markup should be added to the total cost, and second the detailed analysis of the occurrence risk/damage, so it can be assigned an appropriate contingency cost for each component. Shash (1993) in [10] found two important things must be considered in the bidding process, the first decision make a bid/no bid and the second is markup decision.

The decision of bidding does not only consider the possibility of winning the bid, but also consider that the company can finish and complete the project properly in accordance with the contract agreement. Many factors affect the contractor at the bid/no bid decision time. This decision is highly related to the specific project and macro environmental conditions. It is quite hard for making the decisions management level under multiple criteria at the limit time. The decision is based on the experience, intuition and guesses [6].

**Bid/No Bid Decision.** Bidding is an opportunity to make money and also of losing it. Contractor can lose either because it do not win the bid and can not get contract, so it lose the bid cost. Or it wins the bid and gets contract but cost exceed the estimate, and it does not recover the deficit [7]. Many Researchers Find The factors that influence the decision to bid/no bid. The effect of these factors varies depending on the circumstances and background of the research. The different research time, will lead to different issues, such as different economic conditions, construction technologies, bidding strategies and other limitations. Similarly, the studies different countries also have different economic conditions, technologies, policies & different geographies. The project in developing countries have extra consideration on living standard, level of productivity, policy requirement on import, availability of qualified staff, materials, and heavy equipment. Also the stability of the country and the information of the project client. There are six (6) categories of

potential factor that affect bid/no bid decision such as need for work, strength of firm, project conditions contributing to profitability, risk of the project, competition, and strategy considerations [6]. According to [3] there are ninety four (94) factors affecting the bid/no bid decision making and identified into ten (10) groups, include project characteristics, business benefit, the client characteristics, the contract, project finance, company characteristics, firm's previous experience, bidding situation, economic situation, and competition.

**Mark Up Decision.** The problem of competitive bidding is to bid low enough to win the contract, but high enough to get a profit [5]. The bidder is therefore faced with two extremely unpleasant alternatives, first an excellent chance of making no profit with a low bid or second no chance at all of making a high profit with a high bid [7]. There are many factor that effect the contractor's decision to bid/not bid and how much the bid price. The previous research developed many bidding models to assist contractor to determine a bid mark up and obtain an expected value or minimum acceptable price. These bidding models use linguistic variables and apply a single theory of analysis to achieve the objectives. Contractors consider numerous criteria in bidding decisions and a subjective analysis can be used to evaluate such criteria in determination of a bidding mark up. According to [5] bidding criteria are divided into three (3) groups and classifications, include environment factor, company factor and project factor, as shown in Fig. 1.

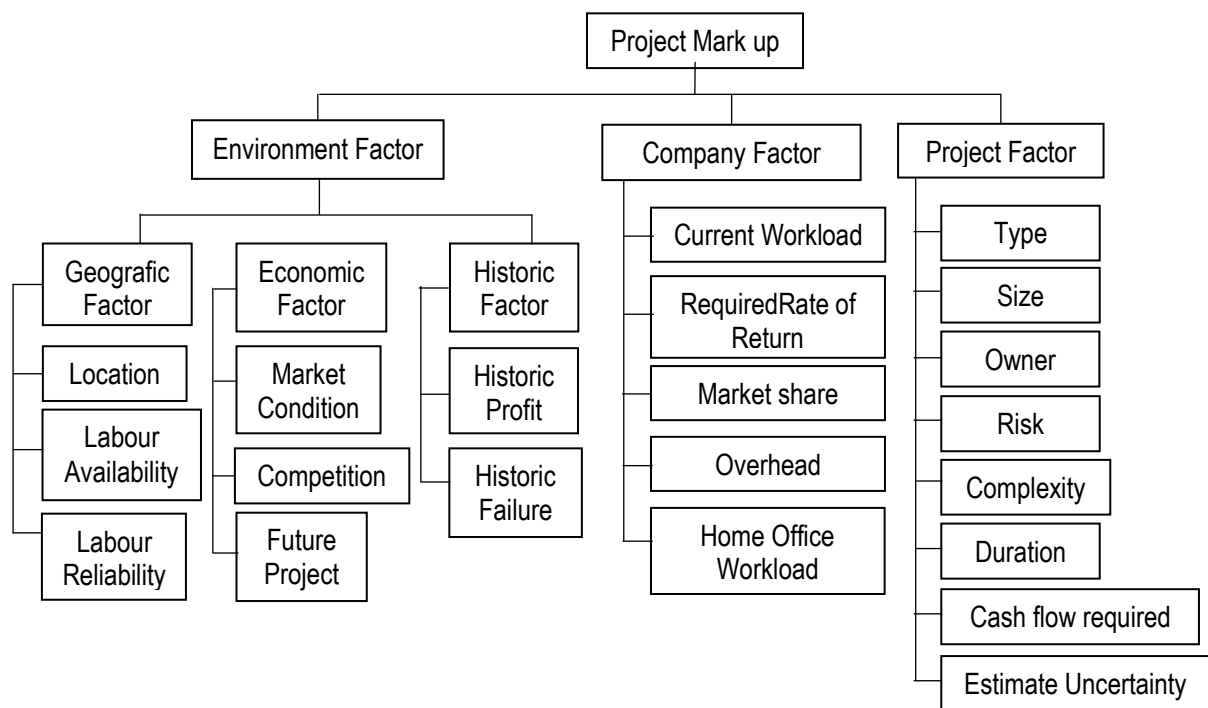


Fig. 1. The Hierarchy Structure of Bidding Criteria

**Project Performance.** Project performance assessments formulated by the influential aspects in achieving development goals of the construction company. Assessment mechanism based on the achievement of performance indicators for both technical and nontechnical [13]. According to [1], explained that indicators of project performance are based on several studies which have been done before, as shown Table 1.

Table 1. Project Performance Indicator

No.	Indicator	Country, Author (Year)												
		S. Arabia (1997)	Egan (1998)	DETR (2000)	Pillai <i>et al.</i> (2002)	Cheung <i>et al.</i> (2004)	Wong (2004)	Constructing Excellence (2005, 2006, 2009)	CCIC (2007)	Luu <i>et al.</i> (2008)	Skibniewski and Ghosh (2009)	Toor and Ogunlana (2010)	Construction Industry Institute (CII) (2011)	Soemardiet <i>et al.</i> (2007)
1	Client Satisfaction	✓	✓	✓		✓	✓	✓	✓	✓	✓			
2	Planning period/Time	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Staff Experience	✓					✓							
4	Communication	✓				✓								
5	Work Health and Safety	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓
6	Budget/Cost	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7	Profitability	✓	✓		✓			✓						
8	Payment	✓												
9	Claims	✓												
10	Productivity		✓		✓			✓					✓	✓
11	Defect		✓					✓			✓	✓		
12	Quality			✓		✓	✓		✓			✓		✓
13	Client changes			✓									✓	
14	Business Performance			✓										
15	Risk				✓									
16	Project Status				✓									
17	Decision Effectiveness				✓									
18	Customer Commitment				✓									
19	Stakeholders				✓							✓		
20	Project Management				✓		✓			✓				
21	People					✓								
22	Environment					✓		✓						✓
23	Resources						✓							
24	Contractor Experience						✓							
25	Cost and time variance							✓						
26	Contractor Satisfaction							✓						
27	Social Indicator							✓						
28	Scope								✓					
29	Innovation								✓					
30	Sustainability								✓					
31	Team Performance									✓				
32	Change Management									✓				
33	Materials Management									✓				
34	Disputes											✓		
35	Efficient											✓		
36	Effective											✓		
37	Reworks												✓	

There are seven important indicators which are used in many studies conducted by various researchers from various countries such as cost, time, health and safety, customer satisfaction, quality, productivity and environment. The research in different places and times certainly have different situations and conditions. Therefore, the utilization of performance indicators will vary as well.

### Theoretical Framework

One of the important phases in the project life cycle is the construction phase. Bidding is the initial stage of the construction phase, which is determine the company success. There is a great volume of researchers concerned with bidding strategies. According to [4], the basic assumption of

all bidding calculation is the relationship between tender sum and the probability of winning the contract. Furthermore when winning the contract, seldom of it seen the project implementation through project performance. This paper focuses on the relationship between bidding strategy and project performance, in order to identify a conceptual framework, which can provide an initial assessment to make a bidding success. The framework addressed by considering many factors in construction bidding, such as internal, external and environmental factors. Each factors influence the bidding decision making and will determine to the project success. In the other words bidding conceptual framework was developed and aims to provide evaluation in the initial project selection phase, which is not only intended to win the competition, but also considering the problems during the project implementation, so that the appropriate solutions will taken as early as possible and a better project performance will be obtained in accordance with the acceptable specification standard. The Bidding Strategy Framework as shown in Fig.2.

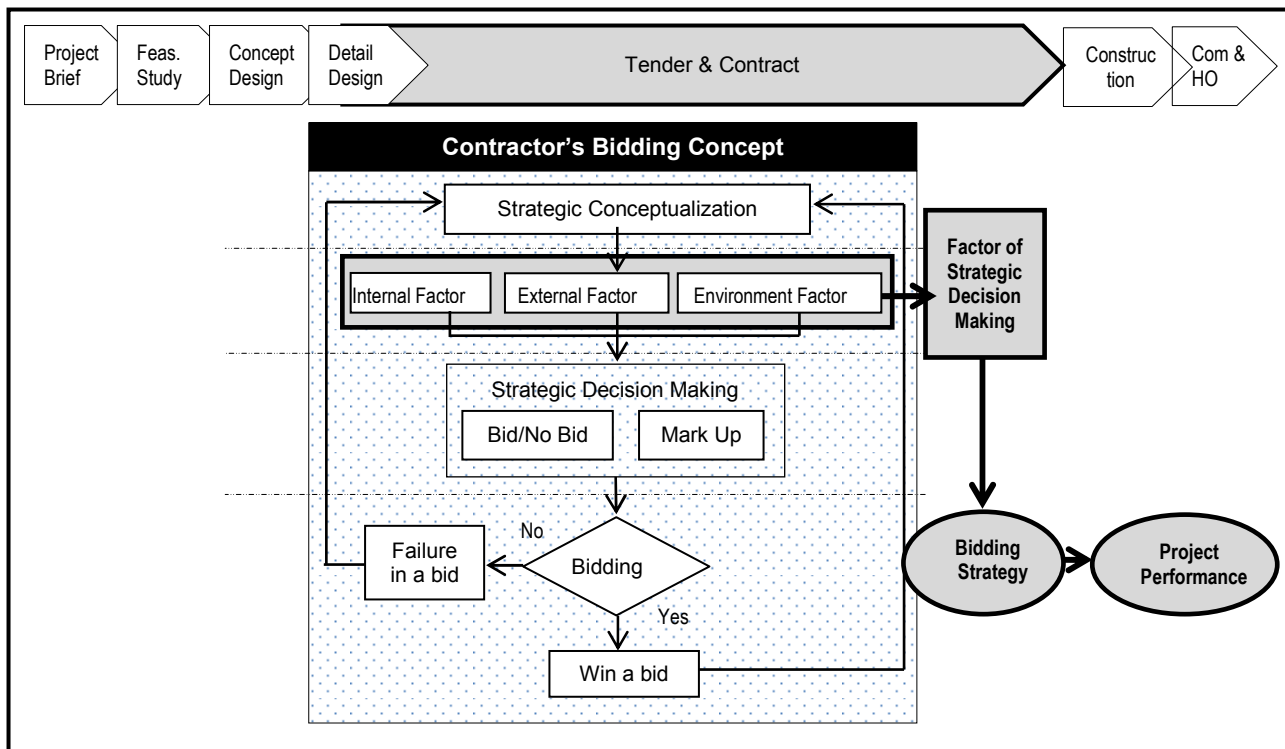


Fig.2. Bidding Strategy Framework

### Summary

The success of project can be shown from its' performance. Good project performance would be achieved through providing constant and careful attention from management and good process from the early stage. Bidding strategy with various influences factors, (internal, external and environment), plays a very important rule to obtain better project performance. The aim of bidding strategy is not only to win the competition but also the project can be implemented in accordance with established specifications, and the project can generate maximum performance. Different projects have different characteristics it would required a different strategy. Bidding Strategy Conceptual Framework can provide relevant feature for assessment and evaluation in the early stages of project selection phase, and becomes an appropriate approach to anticipate potential problems that would arise during the construction project implementation.

This framework would be a new contribution to extend the body of knowledge in this field and significantly improving the project performance through bidding strategy process by identifying all relevant factors influences.

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