

Determination of Factors Affecting Capabilities of Competitiveness in Construction Auction of Company 59 - Ministry of Defense

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Abstract - The article aims to identify factors that affect competitiveness in bidding for construction and installation of Company 59 - Ministry of Defense (MOD). From previous studies and the results of expert group discussions, the study has identified 20 factors affecting competitiveness in bidding for construction and installation of Company 59 - MOD. The most influential factors evaluated by the expert group discussion are bidding price, quality of employees, machinery, equipment, company finance, past experience with similar projects. Based on the research results, the Board Managers of company 59 - MOD can propose appropriate strategies and solutions to increase the company's winning rate.

Keywords- Competitiveness, bidding, bidding for construction, Company 59 - Ministry of Defense, construction projects.

I. INTRODUCTION

Currently, the implementation of the Bidding Law No. 43/2013/QH13 dated November 26, 2013 and the Decree No. 63/2014/ND-CP is strictly and promptly implemented to the public sectors and investors [1]. Therefore, bidding has been put into order, investors are more interested in bidding in accordance with current procedures, overall experience and expertise in the field of bidding has basically been raised, The quality of bidding is also improved day by day with more and more efficiency, the application of online bidding, has increased and become popular in the country, is considered a mandatory condition in the field of basic construction to create a healthy, transparent and effective competitive environment for investors, contractors, and consulting contractors. Therefore, winning bid is a very important survival goal of the contractors in this period.

Company 59-MOD is an enterprise under command of the Ministry of Defense and has affirmed its position in and outside the military, as well as in the construction market for more than 40 years. However, due to the fierce competition of the construction market and the emergence of a large number of corporations, foreign companies, small and medium-sized private construction companies, the winning rate of Company 59-MOD in recent times is declined. Besides almost factors leading to the low winning bidding rate of Company 59-MOD is objective, there are still certain subjective factors. To be specific, Company 59 is ineligible to participate in high-budget projects and has to borrow money from banks for construction causing extra high bidding cost and not being able to compete

with other contractors; equipment capacity is not sufficient to meet requirements of dossiers for large bidding package; the technical staff of the Company is also incapable of experience and diversified in construction specialties; In recent years, Company 59 has been constructing few projects, the value of the project is minor and the revenue from construction activities is also lesser, consequently not meeting the requirements of the bidding dossiers for similar projects. The workers still lack occupational and safety certificates. Therefore, to continue to maintain and develop, Company 59-MOD needs to plan business strategies to adapt current time as well as offer solutions to improve competitiveness in Bidding. In order to achieve the above goals, first of all, the factors affecting competitiveness bidding at Company 59 need to be explored. With the above reasons, the author proceeds to determine the factors affecting competitiveness in construction bidding at Company 59-MOD.

II. RESEARCH OVERVIEW

A. Bidding concept

Bidding means that when contractors want to participate in the implementation of a project, they must comply with the contents and conditions in the bidding dossiers provided by the procuring entity. The contents that bidders comply with the requirements of the bidding dossiers are expressed in writing and must be submitted to the bid solicitor under the prescribed conditions, called the bids [2].

There are many subjects participating in the bidding process: investors, contractors, state bidding management agencies. From these entities' point of views, bidding can be understood as follows:

From the Investor's perspective: Bidding is a competitive method in construction, in order to select contractors (survey, design, build, install, purchase machinery and equipment) to meet the technical requirements set for the construction work.

From the contractor's perspective: Bidding is a competitive method through which the contractor wins the opportunity to contract, survey, design, procure equipment and construction.

From the perspective of state management: bidding is a method of managing the implementation of investment projects through which select contractors, meeting the requirements of the bid solicitor, on the basis of competition between Contractors.

B. Construction bidding concept

Construction bidding (aka construction and installation bidding) is a competitive method, widely applied to investment projects in construction sector. Construction bidding is a public competition between contractors with the same conditions in order to find best contractor for the investor; bid evaluation and selection procedures are according to the bidding regulations of the state.

C. Competition in construction bidding

Currently, there are many documents, books, newspapers as well as legal documents on construction management that admit competition in construction bidding, but there is no specific definition of competition in bidding particularly in construction bidding. However, competition in construction bidding can be understood as follows:

In a narrow sense: competition in construction bidding of enterprises is the process of construction businesses offering solutions in terms of techniques, finance, construction schedule and bid price to best satisfy the requirements of the bid solicitor, in order to ensure winning bid. This concept shows that the competition of construction contractors is the competition between enterprises in order to win bidding.

In a broad sense: Competition in bidding for construction and installation of enterprises is a fierce and fierce struggle between construction enterprises since the beginning of searching information, offering solutions to participate in bidding, signing and implementing the contract until the completion of the handover work at the request of the investor. Thus, competition in construction bidding is a continuous process, the purpose and result of the competition is to win the bid.

D. Overview of previous studies

Nguyen Thi Thanh Huyen (2011) made the thesis "Solutions to improve bidding capacity of Hanoi Post Construction Joint Stock Company" [3]. The author has given 4 solutions to improve the bidding capacity of the Company, specifically: enhancing the company's production capacity; enhancing company image in the market place; improve the quality of bidding; improve the quality of bidding; focus on risk analysis when developing plans and projects.

Phan Thi Thai (2012) conducted a study on "Key measures to improve the competitiveness in construction bidding of construction enterprises" [4]. In this study, the author has only given a number of main approaches to strengthen the capacity of enterprises, enhance the quality of bids and bidding techniques to improve the competitiveness of bidding of Vietnamese construction firms without presenting the methods of how to achieve such results.

Isaac Olaniyi Aje et al. (2016), in an article published on Journal of Construction in Developing Countries, identified the winning bid rate of competitive contractors for construction works in Southeastern, Nigeria [5]. The paper analyzed the factors affecting bidding to help contractors recognize and better manage to minimize risks and contribute to increasing the success rate of competitive bidding for construction works in Southeast Nigeria. However, the scope of research described in this article is limited to construction professionals practicing in Southeast Nigeria.

Ayodeji E. Oke et al. (2017) had a study evaluating the qualitative factors that affect bidders and project success in emerging economies [6]. The study was conducted by the author and colleagues used qualitative and quantitative methods to analyze the factors affecting the bid through questionnaires from experts and data from companies with many years of experience winning bids in Nigeria. Besides, the study also evaluates and determines the factors affecting states from the winning bid price to succeeded performance of the contractor. However, the solutions to improve the competitiveness in construction and installation bidding of construction contractors have not been proposed.

TABLE I. FACTORS AFFECTING COMPETITIVENESS IN CONSTRUCTION BIDDING

No.	Factors affecting competitiveness in construction bidding
1	Company leadership, management level
2	Staff quality
3	Bidding strategy
4	Promotion and marketing strategy
5	Policies and mechanisms to support small scale construction enterprises
6	Economic and market conditions
7	Bid price
8	Risk management plan
9	Quality control
10	Cash flow and cost control
11	Past experience with similar projects
12	Worker skills and experience
13	Records storage
14	Machinery and equipment
15	Relationship with investors, other contractors
16	Managerial organization
17	Political stability
18	Efficient communication between related departments
19	Cooperation with other contractors
20	Company finance
21	Works schedule
22	Organizing and construction plan
23	Application of the latest science and technology
24	Company reputation
25	Company culture

Beltrán Aznar et al (2017) conducted a research of the factors influencing contractor winning results of international infrastructure projects in Australia [7]. This study aims to experimentally determine which factors affect contractors. Bidding results (success or failure), research methodology using survey and consulting. The paper intends to facilitate this process by providing an overview of the relationship between individual harmonic factors in terms of bidding results as well as developing a model to support the decision-making process. The main limitation of this study is single-based country data (Australia). Although 123 projects were analyzed, the variables such as project values, duration and type will require additional data and analysis to allow fair comparison with other factors. Furthermore, in any project, there are many variables that cannot be measured numerically. Therefore, more extensive work on collected data, both in quantities and countries, is recommended and inevitably expandable.

Tolulope Samuel Fawale et al (2018) did a study of the factors influencing the winning results of the industrial construction in Nigeria [8]. By study bidding strategies that influence winning results, the author recommended to win the

bid, the bidder must have strategies. Therefore, the study objectives evaluate the different types of contractors and the bidding strategies applied in Nigeria's industrial construction. Statistics, table description and percentages and mean item scores (MIS) were used to analyze the data. In this study, two main strategies are given, the first strategy of using the relationship that usually wins the contract in oil production projects and the second strategy of the low price bidding is most effective when bidding for construction projects. The drawback is that the research was conducted in only two states.

Le Quang Long (2019) had a thesis about completing the selection of construction contractors at the Construction Investment Management Board of Tan Binh District, Ho Chi Minh City [9]. The thesis has proposed a solution to complete selection of construction contractors under the Construction Management Board of Tan Binh District, Ho Chi Minh City.

From previous studies above, the author has preliminarily identified 25 factors affecting competitiveness in construction bidding (Table 1).

III. RESEARCH METHODOLOGY

Qualitative research method is the main applied method in this study. The research was conducted to survey experts. The surveys will be distributed during a group discussion among specialists to collect opinions to determine the final list of factors affecting competitiveness in construction bidding of Company 59, types of internal and external factors as well as ranking of their influence.

Researching and analyzing external factors to evaluate, synthesize and summarize the main opportunities and challenges of the external environment that affect the Company's operations. Thereby helping the Company managers evaluate the countermeasures to those opportunities and challenges. Analysis of external factors will allow the Company to clearly identify: what are opportunities (O) that the Company can take advantage of and what challenges (T) that the Company faces.

Based on information on internal factors to analyze and consider the ability to react and recognize the strengths and weaknesses of the Company. From these, the Company makes the most of strengths to exploit and prepare internal forces to confront the weaknesses and find solutions to improve these weaknesses. The internal analysis of the Company will allow the identification of strengths and weaknesses of the Company. From these, the selected bidding strategies will be chosen to maximize the strengths and overcome weaknesses of the Company.

IV. RESEARCH AND DISCUSSION RESULTS

The results of the expert group discussions are presented in Tables 2, 3, 4, and 5.

Factors affecting competitiveness determine the existence of an enterprise in the market, in order to have competitive capacity, an enterprise must go through a process of building organizational structures and business strategies (in which includes product, market, human resources, technology, competition strategies). Factors affecting competitiveness can be divided into two groups: Internal factors and External factors.

TABLE II. REJECTED AND ADDITIONAL FACTORS

No.	Rejected factors	Reason
1	Managerial organization	Coincides with factor no. 1
2	Risk management plan	Not affected
3	Quality control	Not affected
4	Cash flow and cost control	Not affected
5	Records storage	Not affected
6	Works schedule	Not affected
7	Organizing and construction plan	Not affected
No.	Additional factors	Reason
1	Capability to prepare bidding dossiers	Affected
2	Competitors	Heavily affected

A. Internal factors

TABLE III. INTERNAL FACTORS

No.	FACTORS
1	Staff quality
2	Bidding strategy
3	Promotion and marketing strategy
4	Bid price
5	Past experience with similar projects
6	Worker skills and experience
7	Machinery and equipment
8	Company leadership, management level
9	Capability to prepare bidding dossiers
10	Efficient communication between related departments
11	Company finance
12	Application of the latest science and technology
13	Company reputation
14	Company culture

- Company finance: financial capacity of the business is presented by:

+ Scale of equity capital sources and loans sources, ability to mobilize capital to serve production and business of enterprises;

+ Efficient use of capital sources;

+ The structure between fixed capital and working capital.

These factors help businesses ensure the correct implementation of the contract signed with the investor.

- Company leadership, management level: a reasonable management organizational structure will enhance business effective in all activities, creating flexibility when handling changes of external factors as well as internal factors in order to minimize unnecessary costs, and at the same time capture opportunities in business activities, in addition, the managerial organization also generates exciting working environment in the workforce, strengthening the relationship between leaders with departments and employees, creates potential strengths in the business.

- Human resources and equipment: are considered as important assets of the business, directly affecting the efficiency of production and business activities. Thereby, affecting the competition of businesses.

- Marketing activities: marketing strategy plays an important role in gaining competitive advantage and business efficiency of enterprises, using appropriate marketing strategy will help businesses occupy a position in the marketplace compared to competitors.

- The possibility of partnership, association: is the combination of two or more economic legal entities to create a new legal entity with more collaboration, experience, and financial capacity. This factor classifies assessing ability of an

enterprise, to increase Company power in the market, expanding partnerships, associating under appropriate forms, through which businesses can comprehensively meet the requirements of large-scale projects.

- Capability to prepare bidding dossiers: competitiveness in bidding depends directly on bidding dossiers, this work requires meticulousness, seriousness, full understanding of content and requirements of bidding documents i.e. investigate the bidding environment and projects, survey the construction site, formulate construction plans, set up bidding prices.

B. External factors

TABLE IV. EXTERNAL FACTORS

No.	FACTORS
1	Competitors
2	Policies and mechanisms to support small scale construction enterprises
3	Economic and market conditions
4	Relationship with investors, other contractors
5	Political stability
6	Cooperation with other contractors

- State and government mechanisms and policies: increasing influence on business operations, including credit regulations, antitrust regulations, tax laws, remuneration and support, environmental protection laws, regulations in the foreign trade sector, investment and construction management. Government policy can generate opportunities or risks for each business. Political stability is an advantageous factor that increases the competitiveness of the country in general and of enterprises in particular.

- Related parties include: investors, consulting organizations, suppliers, markets, competitors. These are relationships that directly affect the competitiveness of a construction company. If the company have a good relationship with these units, the competitiveness will be enhanced.

- Surrounding environment: geographical factors like location and area also affect each business in good or bad way. Fully understand the effects of the surrounding environment is the key to bring out the strengths and limit the negative effects on business.

- Economic and market conditions: These are factors that also affect enterprises' competitiveness in construction and installation bidding. When the economic and market conditions change, the business policies and strategies of enterprises will also be changed to match the reality, so the competition among enterprises becomes even more fierce.

- Political stability: The development of a country has a lot to do with the political stability situation. When the country has political stability, the economy will develop strongly, generating more GDPs and jobs for the society. Stable market prices help businesses define long-term business strategies, stabilize product costs and avoid many arising risks, thereby maintaining and enhancing enterprises' competitiveness.

C. Factors affecting capabilities of competitiveness in construction auction of Company 59 – Ministry of Defense

1) Advantages: is a unit with many years of experience in the field of civil, industry, bridges and roads construction. Key works such as office of the Ministry of Defense, Nguyen Kiem commercial center (Big C), National Defense trade - culture -

sport center (Vincom Cong Hoa), fitness Sports center II/QK7, Vung Tau pilot station, office of Saigon Passenger Vehicle Co., Ltd., office of Hai Au, office of Phu Rieng Rubber Company, housing of railway transport union officers - KV3, Ngo Thoi Nhiem apartment building, K26 - Go Vap apartment building, cultural center of District 11, Youl Chon Vina Plastic Joint Stock Company, Binh An water plant, infrastructure of Vietnam - Singapore Industrial Park, Truong Son Dong border patrol road , Huong Bien Hotel 1, new urban area 67.5 acres. The above works are of technical and aesthetic quality and some projects are awarded certificates of merit by investors. During more than 40 years of establishment and development of Company 59 - MOD has always upheld the tradition of "Uncle Ho soldier" and the military discipline, thereby creating a very prestigious working environment. results, solidarity and team unity. Company 59 - MOD always attaches great importance to the interests of partners when working, creating conditions for all parties to cooperate and develop.

TABLE V. EVALUATE AND RANK THE IMPORTANCE OF THE INFLUENCING FACTORS ACCORDING TO RESEARCH RESULTS

No.	FACTORS	Rank 1-20
1	Bid price	1
2	Staff quality	2
3	Machinery and equipment	3
4	Company finance	4
5	Past experience with similar projects	5
6	Worker skills and experiences	6
7	Relationship with investors, other contractors	7
8	Competitors	8
9	Cooperation with other contractors	9
10	Promotion and marketing strategy	10
11	Company reputation	11
12	Company culture	12
13	Company leadership, management level	13
14	Bidding strategy	14
15	Application of the latest science and technology	15
16	Capability to prepare bidding dossiers	16
17	Efficient communications between related departments	17
18	Economic and market conditions	18
19	Political stability	19
20	Policies and mechanisms to support small scale construction enterprises	20

2) Disadvantages: Construction machinery and equipment are limited in few numbers; the period of use is too depreciated. Full-time staff and technical staff have not been trained synchronously and professionally, still stunned by the high-tech construction projects, short construction time. In recent years, the construction market has faced many difficulties, contractors who want to survive in the current situation are forced to participate in bidding and have to win. Therefore, the severe competition took place in bidding due to the participation of many contractors from all economic sectors.

Company 59-MOD is one of the military units participating in the construction market, despite many difficulties in capital, technology and especially fierce competition in the market economy, The company has made great efforts in managing production and business, expanding markets, ensuring profitable, taking advantage of the available unit's machinery and equipment for construction, as well as hiring more modern machines to execute large projects with

difficulty and complexity which increases the chances of winning the bid for construction of works. However, the winning rate is not high, especially for bidding packages with high technical and technological requirements.

Based on the actual situation of Company 59-MOD and the results of classification of factors affecting construction and installation bidding capacity in Company 59, the author evaluates and ranks the importance of the influencing factors consistent with the results obtained from the study and discussed in Table 5.

D. SWOT matrix analysis of Company 59 - MOD

Based on the results of classification and evaluation of factors affecting the actual capacity of construction and installation bidding in Company 59, the author conducted a SWOT analysis of the influencing factors in Table 6, as follows:

TABLE VI. SWOT MATRIX OF COMPANY 59 – MOD

Weakness (W)	Strength (S)
W ₁ . Bid price W ₂ . Staff quality W ₃ . Machinery and equipment W ₄ . Past experience with similar projects W ₅ . Worker skills and experiences W ₆ . Promotion and marketing strategy W ₇ . Bidding strategy W ₈ . Application of the latest science and technology	S ₁ . Company finance S ₂ . Company reputation S ₃ . Company culture S ₄ . Company leadership, management level S ₅ . Capability to prepare bidding dossiers S ₆ . Efficient communications between related departments
Opportunities (O)	Threats (T)
O ₁ . Relationship with investors, other contractors O ₂ . Political stability O ₃ . Cooperation with other contractors	T ₁ . Competitors T ₂ . Policies and mechanisms to support small scale construction enterprises T ₃ . Economic and market conditions

E. Recommended solutions

1) S₁ + O_{1,2}: Increasing the Company's charter capital to increase the company's financial capacity, and be able to participate in bidding for many projects at the same time and projects with higher value, while strengthening relationships with other investors, contractors to improve competitiveness Company 59 bidding capability.

2) S_{2,3,4} + O_{1,2,3}: Promoting the tradition and reputation of the Company with an effective working environment; cooperation between the parties for mutual development and benefits, thereby enhancing the competitiveness.

3) S_{5,6} + T_{1,2,3}: Increasing study of competitors, the market economic situation, the State's policies to apply the bidding strategy to suit the reality and most effective.

4) W_{6,7} + O_{1,2,3}: Strengthening the promotion and marketing to improve the brand, reputation and position of the Company 59-MOD for market expansion.

5) W₁ + T_{1,2,3}: Cutting costs to the lowest possible level, while saving costs in all activities of the unit to reduce bid prices.

6) W_{2,5,8} + T_{1,3}: Increasing recruitment and on-site training Company leaders, managers, technical staff, skilled workers to improve their professional and qualifications that fulfill all requirements and duties. At the same time, weekly and monthly organize seminars and training classes at the unit

to improve professional knowledge, as well as improve soft skills for all employees in the company.

7) W_{3,4} + T_{1,3}: investing in construction machinery and equipment to improve the company's construction capacity to meet project requirements that the Company participates in bidding.

V. CONCLUSION

This study identifies 20 factors affecting competitiveness in bidding for construction and installation at Company 59-MOD. Factors assessed to be the most influential according to the results of expert group discussion are bid price, quality of employees, machinery, equipment, company finance, past experience with similar projects. Outstanding factors are assessed as the strength of the company in competitive bidding such as company finance, company reputation, company culture. Meanwhile, the company's weaknesses identified by experts were staff quality, bidding strategy, marketing and promotion strategy, bid prices, past experience with similar projects, workers' skills and experiences, machines and equipment; application of the latest science and technology. The above results show that in order to improve the bid winning rate, the Company needs to focus on overcoming internal weaknesses such as improving the quality of human resources, machinery and equipment. There is also a need to have a reasonable bidding strategy and bid price.

Through the research results, the author has tested a number of hypotheses about factors affecting competitiveness in construction and installation bidding at company 59 - MOD and offer some solutions. However, there are still a number of limitations such as: the research was only conducted within the scope of construction and installation bidding at Company 59 – MOD which has its own distinct characteristics, limited variables. Further research needs to extend to the scope of various enterprises in different parts of the Vietnam and international.

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