

THE IMPACT OF COMMUNICATION, TEAMWORK, SWOT ANALYSIS AND BID ASSESSMENT MODEL FOR SUCCESSFUL PROJECT BIDDING DECISIONS (An Empirical Study of Project Decisions in Dubai)

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Abstract: The aim of this study is to investigate the impact of technical and managerial issues for project bidding decisions in Dubai, United Arab Emirates. Three hundred nine project executives and managers belonging to seventy one project organizations in Dubai were interviewed for the study. Quantitative and qualitative analysis was done with percentage, mean, standard deviation, Henry Garrett's ranking, teamwork analysis and SWOT analysis. The survey result indicated that the project bidding process may be summarized with the help of Bidding Assessment Model wherein the inputs such as communication, teamwork and SWOT analysis were given their proper weightage to help project practitioners to decide upon whether to bid or not to bid. The current research paper was shared with twelve senior project professionals who appreciated the effort.

Keywords: project; bid; ranking; communication; teamwork; SWOT; project bidding model

INTRODUCTION

Business organizations are required to be more selective when choosing the project that they should tender for (Smith 1995). It is necessary that the contractors need to choose a potentially profitable project to bid for. According to Egemen & Mohamed (2007), the only possible way for a contractor firm to survive and meet their objectives, aims by winning tenders which makes a profit. On the other hand, Johnston & Mansfield (2001) suggest that contractors need to decide if the project that they are hoping to bid for is the kind of work that they have been successful in completing in the past. This is in addition to whether the contractors can make a reasonable profit. Accordingly, the decision is not only focusing on winning chance of the tender but also considering if they can finish the job as planned with the expected profit margin (Egemen & Mohamed 2007). All the ideas mentioned above suggest that one of the critical decisions for a construction contractor to make is

whether to bid or not to bid for a project when an invitation is received. Bidding performance concerns the relationship among different bidders whose bids are submitted in a competition. Currently, internationalization of companies has attracted broad attention and significant research interest because of global economic slowdown and demand shrinkage. The bid / no bid decisions are very crucial for any stakeholder. It is important to understand that not bidding for a project for which we are capable could result in losing an opportunity to make a profit and bidding for undesirable projects could result in a significant loss or consume resources that could be invested in some better project. A bidding process usually requires adoption of multiphase strategies and criteria. For instance, Bagies and Fortune (2006) divide a bidding process into following four main categories:

- Bidding strategies,
- Bidding markup determinations,
- Factors affecting bidding decisions, and

Bidding decision making process

In addition, several multi criteria bidding models focus on considering various factors to achieve optimal decision making process for variety of projects. However, they usually use an additive utility approach through ignoring possible interdependence between different bidding criteria. Moreover, many studies focus on estimating a successful bidding by effective methods based on project factors. For instance, Wanous *et al.* (1998) identify many factors affecting bidding decision, formulate a linear equation based on a staff survey, and propose an assessment model and neural score to determine whether a bidding is advantageous or not. Most of the existing studies focus on identifying relevant factors and dealing with the correlation among factors and bidding results without real case studies. Existing research shows that the probable risk analysis is superior to most risk analysis methods. However, this may not be true since probable risk analysis requires adequate and precise data from similar projects implemented in similar environments and working conditions to get probability density functions. In practice, collecting such information seems almost not possible because of the uniqueness of each project and unique features of every contract. Some scholars even address the contributions of experts from different professions to group decision making process for selecting contractors of bidding in various projects. In addition, group decision making models are applied in outsourcing contracts selection, selecting project team members and suppliers, and selecting repair contracts in the area of projects. This research paper is focusing on the systematic ways and framework for bid / no bid decision by considering the vital factors such as communication and teamwork influencing the decision.

STATEMENT OF THE PROBLEM

Research can be defined as a systematic investigation, study of relevant material and sources in order to establish facts and reach new conclusions. A “Statement of the Problem” is a description of a difficulty that needs to be solved or at least researched to see whether a solution can be found. It can also be described as either a gap or contradiction between principles and practices. The ultimate goal of a problem statement is to transform a

generalized problem something that is not in the right perspective or into a well-defined problem that can be resolved through focused research and appropriate decision-making. The statement of the problem should include the following:

- A. A clear statement that the problem exists,
- B. Evidence that supports the existence of the problem,
- C. Evidence of an existing trend that has led to the problem,
- D. Definitions of major concepts and terms,
- E. A clear description of the setting,
- F. Probable causes related to the problem, and
- G. A specific and feasible statement.

This research is focused on communication teamwork issues project bidding decisions in Dubai. The study answers the following questions:

1. What is the demographic profile of the project managers / respondents in terms of the socio-economic characteristics such as:
 - a) gender
 - b) age
 - c) education and
 - d) position in projects
2. What are the current communication and team working practices in project bidding process?

The project bidding decisions are based on many managerial perspectives. Projects in United Arab Emirates in general and Dubai in particular have no exception in it. But it is more important to know how people are considering the communication and teamwork seriously to win project bids. In the past, we all have studied that the concepts and conventions of management are relevant to project bidding decisions. The economic success of the project depends a lot on the bidding decisions based on effective communication, efficient teamwork and sound business judgment. It is a case study which dealt with various project parameters in UAE. Dubai has been chosen as a case study for examining project key personnel communication and teamwork behavior towards various projects bidding opportunities.

METHODOLOGY

Methodology is crucial for this study because an unreliable method produces unreliable results and as a consequence undermines the credibility of interpretations and findings relating to the study in this context. The process used to collect information and data for the purpose of making business decision. It includes research publications, interviews, surveys and other research techniques. In management science, it is important to provide relevant and sufficient information for researchers in the field to adopt the methodology used in this study. The researchers would want to understand on how the new or existing methodology is used in an innovative process.

This study is basically explorative in nature and mainly based on primary and secondary data. The collection of primary data through the field survey method was conducted from different project stakeholders in Dubai representing various sectors such as government, private, construction and service sectors. The secondary data is collected from Dubai Statistical Department and other informal yet reliable sources.

Sampling is done based on the response getting from project managers and executives followed by the data collection methods. This study was undertaken to examine the factors influencing the bid / no bid decision and to find out the systematic bid / no bid decision procedure. To answer the research questions this study follows two different approaches.

First, this study examined the factors that influence the bid / no bid decision making in various projects by asking these questions to estimation, project execution, planning, communication and contract teams.

Second, identify the critical factors through literature review research. To answer the research question, altogether three hundred nine project managers and executives of seventy one projects from different departments such as Contract, Marketing, Planning Communication and Estimation were interviewed to list down and rank the factors from one to ten. A score of ten for each factor is considered to be the best and one is considered as the least. Also, a team of twelve employees from projects estimation department brainstormed on the best way to design bid / no bid decision framework.

These employees had been identified according to their position, experience and responsibilities in the project organization to be involved in the tendering processes and therefore have the required information to complete the questionnaire.

This research examines the previous project bid / no bid decision and the impact of that decision on the organization. Completed projects of the companies were studied thoroughly to find out the issues that are listed down during the bid / no bid decision. Data collected from the questionnaire asked the employees, previous bid assessment, and risk analysis data, etc. The brainstormed report was also created and listed down the best procedure for bid/no bid decision.

After the data collection a basic analysis of the gathered data was conducted. The first data set was checked for possible errors, missing values. Second, the response rates were calculated and the characteristics of the respondents were analyzed. Third, the data was compared with the research materials and the best of all is to be considered for deciding factors influencing bid / no bid decision and developing bid/no bid decision framework.

SOURCES AND ANALYSIS OF DATA

The researcher conducted field survey and collected the data from variety of sources such as project managers, project executives and senior project professionals of various projects in Dubai to investigate the impact of communication, teamwork, SWOT analysis and bid assessment model for successful project bidding decisions. The data is summarized and analyzed as follows:

Table A
Gender Wise Profile of Project Professionals interviewed to investigate the impact of communication, teamwork, SWOT analysis and bid assessment model for successful project bidding decisions in Dubai

<i>Details</i>	<i>Frequency</i>	<i>Percent</i>
Males	276	89
Females	33	11
Total	309	100

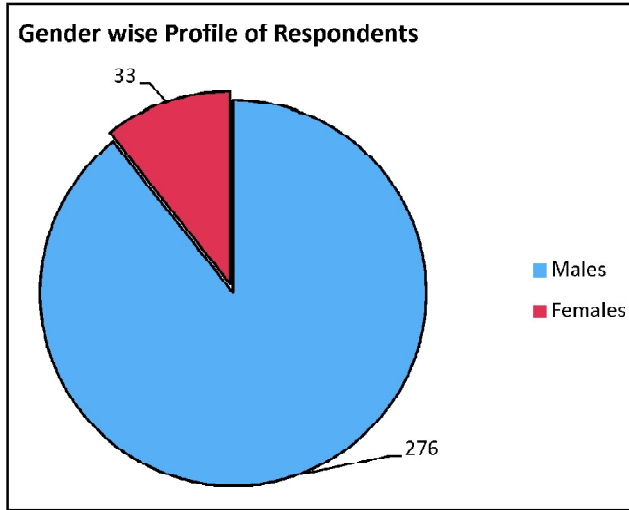


Table B
Age Wise Profile of Project Professionals interviewed to investigate the impact of communication, teamwork, SWOT analysis and bid assessment model for successful project bidding decisions in Dubai

Details / Age of Respondents	Frequency	Percent
20 years – 35 years	56	18
36 years – 50 years	123	40
51 years – 65 years	93	30
66 years and above	37	12
Total	309	100

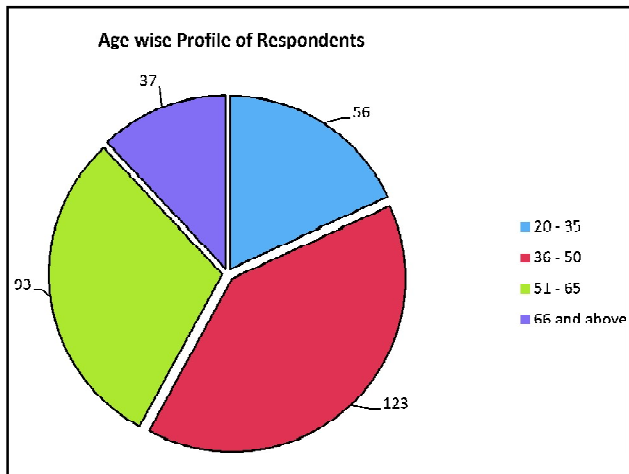


Table C
Educational Profile of Project Professionals interviewed to investigate the impact of communication, teamwork, SWOT analysis and bid assessment model for successful project bidding decisions in Dubai

Details of Education	Frequency	Percent
Graduates	72	23
Master Degree Holders	109	35
PMPs	83	27
Others	45	15
Total	309	100

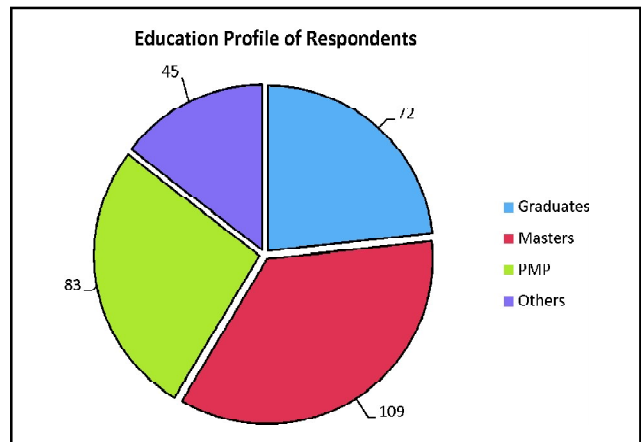
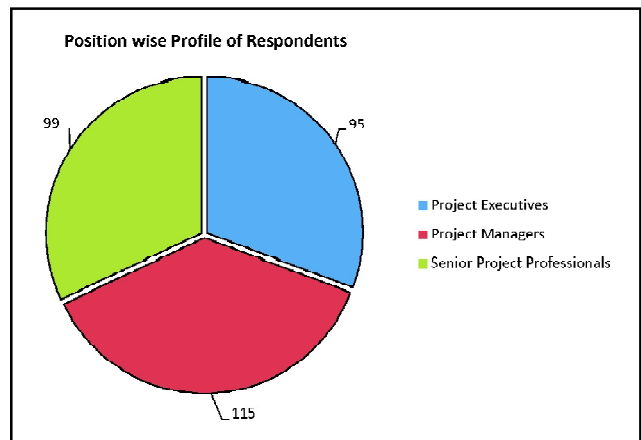


Table D
Position Wise Profile of Project Professionals interviewed to investigate the impact of communication, teamwork, SWOT analysis and bid assessment model for successful project bidding decisions in Dubai

Details of Positions	Frequency	Percent
Project Executives	95	31
Project Managers	115	37
Senior Project Professionals	99	32
Total	309	100



FINDINGS

1. The majority of the respondents are in the age group of 36 - 50 and the proportion is in favor of males.
2. The highest number of respondents is in the age group 36 to 50. The lowest number of respondents is in the age group of 66 and above.
3. The highest number of respondents is in the category of Master Degree Holders and second highest number of respondents in the category of certified Project Management Professionals.
4. The highest number of respondents is in the position of Project Managers and second highest number of respondents in the category of position of Senior Project Professionals. The lowest number of respondents is in the category of Project Executives.

BID / NO BID DECISION PARAMETERS

Bid / no-bid decisions in any project company are considered to be very difficult, and it may not be correct every time. Project companies need to understand the best way to make bid / No bid decision. To be specific it is claimed by Han and Diekmann (2001) that many project companies still using methods that are incomplete, fragmented, and elementary based on “personal instinct”. In this paper, a creative and systematic procedure is mentioned for bid / no bid decision involving communication as factor for bid / no bid decision, teamwork as lesson learned from past projects, SWOT analysis, bid assessment etc. The results of this may be used for future bidding decisions so that firms become more competitive.

Table E
Integrated Bid / No Bid Decision Processes for Projects in Dubai

<i>Phases</i>	<i>Description</i>
Phase 1	Effective Communication – Two way communication process within the team members regarding listing the factors that affect Bid / No Bid decision
Phase 2	Teamwork – Discuss and delve upon the lessons learned from previous projects on linking the size of the team to successful project bidding issues
Phase 3	SWOT Analysis – Work on detailed SWOT analysis to determine the project bidding strategy
Phase 4	Bid Assessment Model – Bid or Not to Bid

Cohen describes some of the kinds of hands on which the law may not work properly and recommends some evaluation methods that may allow you to reach more accurate decisions on the projects to bid or not to bid. He applies competitive decisions from level 2 to level 5 to arrive at an acceptable solution. However, most of the project managers and executives rely on:

When notification of a tender comes in, the very first step of the core bid team is to download all documentation and assess whether to tender is right for your core business or not. But it is not always possible to take decision from the short tender notification description, so it is advisable to read all the documents thoroughly and follow the four phases mentioned in Table A above.

PHASE 1: EFFECTIVE COMMUNICATION – TWO WAY COMMUNICATION PROCESS WITHIN THE TEAM MEMBERS REGARDING LISTING THE FACTORS THAT AFFECT BID / NO BID DECISION

There are many surveys have been conducted across the world to identify factors that affect the bid / no bid decision. Ahmad and Minkarah (1988) conducted a survey questionnaire to determine bidding factors in the US construction industry and identified fifty five bidding factors. Shash (1993) explains that a construction company can either negotiate with the client or use a competitive bidding process to obtain a job and used thirty one bidding factors. Fu and Drew (2002) suggest that competitive bidding is the most common method used for contractor selection. In competitive bidding process, a client selects a numbers of contractors to bid for the proposed project. The selected contractors must to decide whether to bid or not bid. The contractors need to submit an estimated price if they intend to bid. The client would select the contractor who submitted the preferred price. Therefore the decision to bid is the first step that contractors need to consider. There are various factors that need to be considered by the contractors in order to make the decision to bid or not. The decision is highly related to the specific project and macro environment. It is hard to make a decision in a limited time by the management team. The decision generally is

made on the basis of experience, intuition and guesses by Egemen and Mohamed (2007). The present study identified the following ten high impact factors that affect bid / no bid decision in Dubai projects:

1. Bidding Time and Documents
2. Type of the Project – Specification of Work, Quality, Price and Etc.
3. Dispute Adjudication Process for the Project
4. Liquidity Damages
5. Retention Money Percentage
6. Advance Payment and Milestones of Payment
7. Bonus for Early Completion
8. Adjustment for Changes in Cost
9. Security Conditions – Performance Guarantee, Bid Security and Etc.
10. Warranty

Table F
Ranked Responses of Project Executives and Managers in Dubai Projects

S. No.	Factor	Rank										No. of Respondents
		1	2	3	4	5	6	7	8	9	10	
1	Bidding Time and Documents	59	47	42	18	28	24	28	26	17	20	309
2	Type of the Project	72	58	29	36	40	11	14	16	25	8	309
3	Dispute Adjudication Process	63	29	39	56	30	28	18	16	8	22	309
4	Liquidity Damages	52	30	26	18	24	51	31	26	27	24	309
5	Retention Money	63	63	48	37	12	21	10	21	19	15	309
6	Advance Payment and Milestones	81	21	51	14	31	19	17	28	21	26	309
7	Bonus for Early Completion	75	32	39	46	21	17	22	21	22	14	309
8	Adjustment for Changes in Cost	62	61	35	21	57	12	16	15	14	16	309
9	Security Conditions	58	25	31	31	23	32	38	17	29	25	309
10	Warranty	52	42	41	42	32	24	21	28	18	9	309

Table G
Percent Value and Conversion to Garrett Ranking Scores of Ranked Responses of Project Executives and Managers in Dubai Projects

Rank	Formula: $100 (R_{ij} - 0.5) / N_j$	Percent Value	Conversion to Garrett Score *
1	$100 (1 - 0.5) / 10$	05	82
2	$100 (2 - 0.5) / 10$	15	70
3	$100 (3 - 0.5) / 10$	25	63
4	$100 (4 - 0.5) / 10$	35	58
5	$100 (5 - 0.5) / 10$	45	52
6	$100 (6 - 0.5) / 10$	55	48
7	$100 (7 - 0.5) / 10$	65	42
8	$100 (8 - 0.5) / 10$	75	36
9	$100 (9 - 0.5) / 10$	85	29
10	$100 (10 - 0.5) / 10$	95	18

Table H
Calculated Garrett Scores for Each Rank per Each Factor, Total Scores and Final Ranking of
Ranked Responses of Project Executives and Managers in Dubai Projects

Factors	Rank 1*	Rank 2*	Rank 3*	Rank 4*	Rank 5*	Rank 6*	Rank 7*	Rank 8*	Rank 9*	Rank 10*	Total Score**	Final Ranking of Factors
1	4,838	3,290	2,646	1,044	1,456	1,152	1,176	936	493	360	17,391	9 th
2	5,904	4,060	1,827	2,088	2,080	528	588	576	725	144	18,520	1 st
3	5,166	2,030	2,457	3,248	1,560	1,344	756	576	232	396	17,765	6 th
4	4,264	2,100	1,638	2,646	1,248	2,448	1,302	936	783	432	17,797	5 th
5	5,166	4,410	3,024	2,146	624	1,008	420	756	551	270	18,375	2 nd
6	6,642	1,470	3,213	812	1,612	912	714	1,008	609	468	17,460	8 th
7	6,150	2,240	2,457	2,668	1,092	816	924	756	638	252	17,993	4 th
8	5,084	4,270	2,205	1,218	2,964	576	672	540	406	288	18,223	3 rd
9	4,756	1,750	1,953	1,798	1,196	1,536	1,596	612	841	450	16,488	10 th
10	4,264	2,940	2,583	2,436	1,664	1,152	882	1,008	522	162	17,613	7 th

* Number of Ranked Responses for Each Factor (Table B) x Garrett Score of Each Factor (Table C)

** Sum of Total Score of all rankings for each factor

FINDINGS

The research results on the basis of Garrett Ranking method reveals that the respondents such as Project Executives and Managers prefer to Type of the Project – Specification of Work, Quality, Price and Etc. as first rank, Retention Money Percentage as the second, Adjustment for Changes in Cost as third, Bonus for Early Completion as fourth, Liquidity Damages as fifth, Dispute Adjudication Process for the Project as sixth, Warranty as seventh, Advance Payment and Milestones of Payment as eighth, Bidding Time and Documents as ninth and Security Conditions – Performance Guarantee, Bid Security and Etc., as tenth rank.

PHASE 2: TEAMWORK – DISCUSS AND DELVE UPON THE LESSONS LEARNED FROM PREVIOUS PROJECTS ON LINKING THE SIZE OF THE TEAM TO SUCCESSFUL PROJECT BIDDING ISSUES

Successful teamwork relies upon synergism existing between all team members creating an environment where they are all willing to contribute and participate in order to promote and nurture a positive, effective team environment. Team members must be flexible enough to adapt to cooperative working environments where

goals are achieved through collaboration and social interdependence rather than individualized, competitive goals (Luca & Tarricone, 2001).

Research has provided a number of attributes required for successful teamwork. Many of these attributes have been consistently identified in the literature. The size of a team has profound effects on several aspects of teamwork quality. First, the sharing of technical and coordinative information within the team becomes significantly more difficult as the number of team members increases (Zenger & Lawrence, 1989). As team size grows, the complexity of the communication structure between all members increases dramatically. Team size is an important determinant of the social loafing phenomenon, whereby individuals decrease their effort as the number of people in the group increases. The list provides a summary of literature on the successful attributes needed for effective teamwork is as follows:

- **High Quality of Project Teamwork** - team members are committed to the success of the team and their shared goals for the project. Successful teams are motivated, engaged and aim to achieve at the highest level of quality for project bidding

- **Coordination of Project Teamwork** - team members need to create an environment where together they can contribute far more than as individuals. A positive interdependent team environment and coordination brings out the best in each person enabling the team to achieve their goals at a far superior level. Individuals promote and encourage their fellow team members to achieve, contribute, and learn;
- **Interpersonal Skills** includes the ability to discuss and communicate issues openly with team members, be honest, trustworthy and show respect and commitment to the team and to its individuals. Fostering a caring work environment is important including the ability to work effectively within tight deadlines with other team members to achieve project bidding goals in particular;
- **Team Effort** - actively listening to the concerns and needs of team members and valuing their contribution and expressing this helps to create an effective work environment. Team members should be willing to give and receive constructive criticism and provide authentic feedback to facilitate the project work in general and the project bidding in particular;
- **Mutual Support is essential in the creation of a successful team.** Team members need to be fully aware of their specific team role and understand what is expected of them in terms of their contribution to the team and the project; and
- **Commitment to team processes, leadership & accountability** - team members need to be accountable for their contribution to the team and the project. They need to be aware of team processes, best practice and new ideas. Effective leadership is essential for team success including shared decision-making and problem solving.

Table I
Survey Result of Project Team Executives and Managers - Smaller Teams are better for Bidding Project Teamwork

	<i>Percentages of Responses by Project Team Executives and Managers</i>				
	<i>Three Team Members</i>	<i>Five Team Members</i>	<i>Seven Team Members</i>	<i>Nine Team Members</i>	<i>More than Nine Team Members</i>
High Quality	59	20	14	11	6
Effective Coordination	47	23	17	13	10
Exceptional Interpersonal Skills	50	18	15	12	5
Highly Skilled Team Effort	39	32	10	11	8
Professional Mutual Support	35	31	14	13	7
Strong Commitment	45	23	12	14	6

FINDINGS

It is evident from the above data that the right team size will certainly depend on the work to be performed with some tasks requiring more team members than others do. By the same logic, the above information based on the research highlights the limitations to team size arising from its effect on the collaborative work processes.

Investigating the effects of team size on project bidding process based on above data from seventy one

projects in Dubai, it was found that 61% of the respondents were in favor of small team size of three team members, 23% were in favor of medium team size of six team members and 16% in favor of big team size of nine team members in terms of high quality teamwork for project bidding processes. It was found that 52% of the respondents were in favor of small team size of three team members, 27% were in favor of medium team size of six team members and 21% were in favor of big team size of nine team members in terms of effective

coordination of teamwork for project bidding processes. It was found that 73% of the respondents were in favor of small team size of three team members, 16% were in favor of medium team size of six team members and 11% in favor of big team size of nine team members in terms of exceptional interpersonal skills of teamwork for project bidding processes. It was found that 55% of the respondents were in favor of small team size of three team members, 29% were in favor of medium team size of six team members and 16% in favor of big team size of nine team members in terms of highly skilled team effort of teamwork for project bidding processes. It was found that 80% of the respondents were in favor of small team size of three team members, 13% were in favor of medium team size of six team members and 7% in favor of big team size of nine team members in terms of professional mutual support of teamwork for project bidding processes. It was found that 75% of the respondents were in favor of small team size of three team members, 15% were in favor of medium team size of six team members and 10% in favor of big team size of nine team members in terms of strong commitment of teamwork for project bidding processes.

PHASE 3: SWOT ANALYSIS – WORK ON DETAILED SWOT ANALYSIS TO DETERMINE THE PROJECT BIDDING STRATEGY

SWOT analysis is an analytical tool which is used to identify and categorize significant internal strengths, weaknesses and external opportunities and threat factors faced either in a particular arena, such as an organization, or a project or a territory, such as a region, nation, or city. It provides information that is helpful in matching the firms’ resources and capabilities to the competitive environment in which it operates and is therefore an important contribution to the strategic planning process.

It should not be viewed as a static method with emphasis solely on its output, but should be used as a dynamic part of the management and business development process. SWOT analysis involves the collection and portrayal of information about internal and external factors that have, or may have, an impact on the evolution of an organization or business or project. It generally provides a list of an organization’s strengths

and weaknesses as indicated by an analysis of its resources and capabilities, plus a list of the threats and opportunities identified by an analysis of its environment. Strategic logic requires that the future pattern of actions to bid or not to bid the projects should match strengths with opportunities ward off threats and seek to overcome weaknesses.

This stage includes the actual process of the bid/no bid decision. When you have a big business decision to make, one of the smartest things you can do is conduct a SWOT analysis. SWOT, which stands for strengths, weaknesses, opportunities and threats, is an analytical framework that can help companies to make the most appropriate decision and face greatest challenges in this more competitive market.

In a bidding process, the SWOT analysis enables to identify both internal and external influences to the project. This matrix to be developed from of the results obtained by the study of factors such as effective communication – two way communication process within the team members regarding listing the factors that affect Bid / No Bid decision, and teamwork – discuss and delve upon the lessons learned from previous projects on linking the size of the team to successful project bidding issues. SWOT’s primary objective is to help organizations to develop a full aware of all the factors involved in a decision. Whenever a project comes at the door, the project organizations have to identify the strengths, weaknesses of their business firm against the particular project. Also management has to identify the

Table J
SWOT Matrix for Bidding the Projects

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Expert in Similar Projects • Availability of Professional Employees • Excellent Track Record • Popular Brand 	<ul style="list-style-type: none"> • Low Financial Resources • Competitive Vulnerability • New Geographic Location • Busy on Many Projects
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • New Technology • Diversification • International Certification • Future Bids 	<ul style="list-style-type: none"> • Global Competition • Low Margins in Future • Obsolete Technology • Economic Slowdown

opportunities and threats that come in the path during execution. Following is the SWOT matrix developed by considering the responses of the project executives and managers to bid / not to bid:

PHASE 4: BID ASSESSMENT MODEL – BID OR NOT TO BID

Hatush and Skitmore pointed that the tender system of basing decisions on the minimum price has been used in New York since 1848 for highway and bridge tenders. The main idea of such a method was to save financial resources and create equal competition for all contractors by lowest bid. Hatush and Skitmore recognized certain elements that were common factors in the contractor selection process for each and every one type of procurement arrangements. Bid evaluation according to Herbsman and Ellis, amount to the ‘major’ criteria of cost, time, and quality as measured by the bid amount, time of execution, and quality of previous work respectively. The evaluation of bids by multi-attribute methods may encounter some difficulties when comparing different criteria measured by different scales. Hence various ways have been suggested for combining criterion values into a single scale. Bid evaluation criteria may vary in emphasis according to the characteristics of the project.

Project firms are increasingly participating in competitive bid processes to gain work from clients, or to continue relationships with established clients. But there must be some parameters that define the right path for it. The bid assessment model as given below will help to evaluate the next bid opportunity for the likelihood of success. These points will help assess the strategic position vis-à-vis the strengths, weaknesses, opportunities and threats of what can be offered. In this bid assessment model, Table 5G, the bid has to score maximum points across the five phases on the basis of the scale from -2 to 10, -2 is for serious competitive disadvantage, 0 is no competitive advantage and 10 is for strong competitive advantage towards project bid. The total is to be calculated from all the phases / criteria. If the total score exceed the pre-defined score then go for bid. Otherwise need to think more. The following matrix will help assess the project Bid or No Bid scenarios:

CONCLUSION

To bid or not to bid decision is very challenging for project firms to choose most beneficial projects from a bundle of options available. Past research on bid or no bid decision provided the frequent frameworks. The purpose of this research is to provide the technical and managerial guidelines with best practice, tools and techniques which help the project companies to take decision on bid/no bid in this highly competitive environment. Based on an extensive literature review, a number of research studies on bid/no bid decisions found out and discussed with the project firms executives and managers to develop four stage integrated framework in which the project firm need to identify communication factors that influence the bid/no bid decision, while they are assisted by the teamwork factors. Despite ample research evidence and the intuition of many practitioners that teamwork quality is lost in large teams most organizations find it difficult to keep teams small. This work attempted to shed light on this widespread issue, explain why large team size hinders teamwork, and suggest four ways to keep teams lean and functional as collaborative work units. The SWOT analysis is further recommended to take the bid/no bid decision which helps project firms to identify their strength, weaknesses, opportunity and threats for bidding the particular project. Finally bid assessment model will help the project firm to take bid/no bid decision more wisely. This research work has contributed to the existing body of knowledge in that it would help to encourage the project firm to make the bid/no bid decision by using right tools at the right time for a right project. As a result, the project firm can select more feasible projects with a higher likelihood of success by integrating SWOT analysis, bid assessment model into their bid/no bid decision process.

RECOMMENDATIONS

1. Project bidding decision process should focus on communicating with in the project team, taking out the best out of teamwork and apply SWOT concepts to assess the bid prior to bid or not to bid. However, the project bidders must be alert on considering risk factors.

Table K
Bid Assessment Model

Phase 1: Effective Communication:		Score	Potential Deal
	10 = Strong Competitive Advantage 01 = Low Competitive Advantage		
1	Rank 1: Type of the Project		
2	Rank 2: Retention Money Percentage		
3	Rank 3: Adjustment for Changes in Cost		
4	Rank 4: Bonus for Early Completion		
5	Rank 5: Liquidity Damages		
6	Rank 6: Dispute Adjudication Process for the Project		
7	Rank 7: Warranty		
8	Rank 8: Advance Payment and Milestones		
9	Rank 9: Bidding Time and Documents		
10	Rank 10: Security Conditions		
	Total		
Phase 2: Teamwork		Score	Potential Deal
	5 = Strong Competitive Advantage		
	1 = Low Competitive Advantage		
11	Team comprising of 3 team members		
12	Team comprising of 5 team members		
13	Team comprising of 7 team members		
14	Team comprising of 9 team members		
15	Team comprising more than 9 team members		
	Total		
Phase 3: SWOT Analysis		Score	Potential Deal
	5 = Strong Competitive Advantage – Each Strength		
	4 = Moderate Competitive Advantage – Each Opportunity		
	-2 = Low Competitive Advantage – Each Weakness		
	-1 = Lowest Comp. Advantage – Each Threat		
16	Strength: Expert in Similar Projects		
17	Strength: Availability of Professional Employees		
18	Strength: Excellent Track Record		
19	Strength: Popular Brand		
20	Weakness: Low Financial Resources		
21	Weakness: Low Financial Resources		
22	Weakness: Low Financial Resources		
23	Weakness: Low Financial Resources		
24	Opportunity: New Technology		
25	Opportunity: Diversification		
26	Opportunity: International Certification		
27	Opportunity: Future Bids		
28	Threat: Global Competition		
29	Threat: Low Margins in Future		
30	Threat: Obsolete Technology		
31	Threat: Economic Slowdown		
	Total		
			# of Y's:
	Total Score		

2. Create a multi-team project. Larger projects should be assigned to several small teams, rather than a single large one. There may be an overall project leader facilitating the coordination between teams, or the teams themselves coordinate with each other.
3. SWOT analysis is strongly recommended to win the bid and minimize the probability of subsequent failure of project.
4. Project Bid Assessment will be very useful new tool to summarize all the factors involved in preparation to bid for the project. Researchers may consider adding new factors such as Project Risk, Project leadership and Project Quality Management.

REFERENCES

- R. Awwad, (2016). "Evolutionary simulation of contractors' learning and behavior under two bid-tendering approaches," *Journal of Management in Engineering*, vol. 32, no. 2, Article ID 04015041.
- S. Asgari, R. Awwad, A. Kandil, and I. Odeh, (2016) "Impact of considering need for work and risk on performance of construction contractors: an agent-based approach," *Automation in Construction*, vol. 65, pp. 9-20.
- B. Liu, T. Huo, J. Meng, J. Gong, Q. Shen, and T. Sun, (2016) "Identification of key contractor characteristic factors that affect project success under different project delivery systems: empirical analysis based on a group of data from China," *Journal of Management in Engineering*, vol. 32, no. 1, Article ID 5015003.
- P. Ballesteros-Pérez, M. L. del Campo-Hitschfeld, D. Mora-Melià, and D. Domínguez, (2015) "Modeling bidding competitiveness and position performance in multi-attribute construction auctions," *Operations Research Perspectives*, vol. 2, pp. 24–35.
- A. Mahdavi and M. Hastak, (2014) "Quantitative analysis of bidding strategies: a hybrid agent based-system dynamics approach," in *Proceedings of the Construction Research Congress: Construction in a Global Network (CRC '14)*, pp. 1129–1138.
- C. M. Harper, K. R. Molenaar, S. Anderson, and C. Schexnayder, (2014) "Synthesis of performance measures for highway cost estimating," *Journal of Management in Engineering*, vol. 30, no. 3, Article ID 04014005.
- B. S. Liu, T. F. Huo, P. C. Liao, J. Gong, and B. Xue, (2014) "A group decision-making aggregation model for contractor selection in large scale construction projects based on two-stage partial least squares (PLS) path modeling," *Group Decision & Negotiation*, vol. 24, no. 5, pp. 855–883.
- I. J. Pérez, F. J. Cabrerizo, S. Alonso, and E. Herrera-Viedma, (2014) "A new consensus model for group decision making problems with non-homogeneous experts," *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, vol. 44, no. 4, pp. 494–498.
- D. Schiereck and J. Vogt, (2013) "Long-run M & A success of strategic bidders in the construction industry, *Problems and Perspectives in Management*", vol. 11, no. 4, pp. 46–67.
- M. S. El-Mashaleh, (2013) "Empirical framework for making the Bid/No-Bid decision," *Journal of Management in Engineering*, vol. 29, no. 3, pp. 200–205.
- J.-S. Chou, A.-D. Pham, and H. Wang, (2013) "Bidding strategy to support decision-making by integrating fuzzy AHP and regression-based simulation," *Automation in Construction*, vol. 35, pp. 517–527.
- Ayub, A., Aslam, M.S., Razzaq, A. and Iftekhar, H. (2013). "A conceptual framework on evaluating SWOT Analysis as the mediator in strategic marketing planning through marketing intelligence." *European Journal of Business and Social Sciences*, 2(1).
- Bee, L.O., Hing-Po, L. and Benson T H.L. (2012). "The effect of bidding success in construction bidding." *Engineering, Construction and Architectural Management*, 19(1), pp. 25-39.
- Garbharran, H., Govender, J. and Msani, T. (2012). Critical success factors influencing project success in the construction industry. *Acta Structilia*, 19(2).
- M.-Y. Cheng, C.-C. Hsiang, H.-C. Tsai, and H.-L. Do, (2011) "Bidding decision making for construction company using a multi-criteria prospect model," *Journal of Civil Engineering and Management*, vol. 17, no. 3, pp. 424–436.
- Ahmad R.O. (2011). Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis for farming system businesses management: Case of wheat farmers of Shadervan District, Shoushtar Township, Iran. *African Journal of Business Management*, 5(22), pp. 9448-9454.
- Lu, W. (2010). Improved SWOT Approach for conducting strategic planning in the construction industry. *Journal of Construction Engineering and Management*, 136(12), pp. 1317-1328.

- S. S. Padhi and P. K. J. Mohapatra, (2010) "Centralized bid evaluation for awarding of construction projects—a case of India government," *International Journal of Project Management*, vol. 28, no. 3, pp. 275–284.
- Lu, W.S., Li, H., Shen, L.Y. and Huang, T. (2009). A SWOT analysis of Chinese construction companies in the global market, *ASCE Journal of Management in Engineering*.
- Plebankiewicz, E. (2009). Contractor prequalification model using fuzzy sets. *Journal of Civil Engineering and Management*, 15(4), 377–385.
- Green, S., Harty, C., Elmualim, A. A., Larsen, G. D. and Kao, C. C. (2008). On the discourse of construction competitiveness. *Building Research & Information*, Vol. 36, No. 5, pp. 426-435.
- Green, S., Harty, C., Elmualim, A. A., Larsen, G. D. and Kao, C. C. (2008). On the discourse of construction competitiveness. *Building Research & Information*, Vol. 36, No. 5, pp. 426-435.
- Toor, S. and Ogunlana, S.O., (2008), "Critical COMs of success in large-scale construction projects: Evidence from Thailand construction industry", *International Journal of Project Management*, vol. 26, no. 4, pp. 420-430.
- Ginevicius, R., & Podvezko, V. (2008). Multicriteria graphical analytical evaluation of the financial state of construction enterprises. *Technological and Economic Development of Economy*, 14(4), 452–461.
- Mitkus, S., & Trinkuniene, E. (2008). Reasoned decisions in construction contracts evaluation. *Technological and Economic Development of Economy*, 14(3), 402–416.
- Egemen M. and Mohamed, A. (2007). "A framework for contractors to reach strategically corrects bid/no bid and mark-up size decisions". *Building and Environment*.
- A. T. de Almeida, (2007) "Multicriteria decision model for outsourcing contracts selection based on utility function and ELECTRE method," *Computers & Operations Research*, vol. 34, no. 12, pp. 3569–3574.
- A. Bagies and C. Fortune, (2006) "Bid/ no-bid decision modelling for construction projects," in *Proceedings of the 22nd Annual Conference on Association of Researchers in Construction Management (ARCOM '06)*, pp. 511–521, Birmingham, UK, September.
- Banaitiene, Banaitis. (2006). Analysis of criteria for contractors' qualification evaluation, *Technological and Economic Development of Economy*, 12(4), 276–282.
- Clough, R. (1986). *Construction contracting*. New York, NY, Wiley.
- Chen, M.T., (2005), "Innovative Pre-Planning for International Projects", *AACE International Transactions*, INT.01.
- Ling, F. Y. Y and Liu, M. (2005). Factors considered by successful and profitable contractors in mark-up size decision in Singapore. *Building and Environment*, Vol. 40, No. 11, pp. 1557–1565.
- Lowe, D. and Parvar, J., (2004), "A logistic regression approach to modeling the contractor's decision to bid", *Construction Management and Economics*, vol. 22, no. 6, pp. 643-653.
- Mohammad S. El-Mashaleh, Ashraf Al-Jundi (2004), "Understanding Key Bidding Factors Considered by Top Jordanian Contractors", *Jordan Journal of Civil Engineering*, Volume 8, No. 4.
- Von Zedtwitz, M. (2003), "Post-project reviews in R&D", *Research, Technology Management*, September-October, pp. 43-49.
- King, A. A., & Tucci, C. L. (2002). Incumbent Entry into New Market Niches: The Role of Experience and Managerial Choice in the Creation of Dynamic Capabilities. *Management Science*, 48(2), 171-186.
- Johnston, H. & Mansfield, G. L. (2001), *Bidding and estimating procedures for construction*, Prentice-Hall, USA.
- Han, S.H. and Diekmann, J.E., (2001), "Approaches for making risk-based go/no-go decision for international projects", *Journal of Construction Engineering and Management*, vol. 127, no. 4, pp.300-308.
- Alhazmi, T., & McCaffer, R. (2000). Project procurement system selection model. *Journal of Construction Engineering and Management*, 126, 176–184.
- Wanous, M., Boussabaine, A. and Lewis, J. (2000). "To bid or not to bid: a parametric solution". *Construction management and Economics*, 18, 457-466.
- Archer, N. P., & Ghasemzadeh, F. (1999). An integrated framework for project portfolio selection. *International Journal of Project Management*, 17(4), 207- 216.
- Wanous, M. Boussabaine, A.H. & Lewis, J. (1998), "Tendering factors considered by Syrian contractors", in *ARCOM, 14th Annual Conference Proceedings*, Oxford, pp. 535-543.
- Dozzi, S. P. & AbouRizk, S. M. (1996), "Quality Theory Model for Bid Markup Decision", *Journal of Construction Engineering and Management*, June, pp. 119-124

- Smith, A. J. (1995), *Estimating, Tendering and Bidding for Construction*, Macmillan, Basingstoke
- Dean, J. W., & Sharfman, M. P. (1993). "Procedural Rationality in the Strategic Decision-Making Process." *Journal of Management Studies*, 30(4), 587-610. doi: DOI 10.1111/j.1467-6486.1993.tb00317.
- Siegel, S., and Castellan, N. (1988). "Nonparametric statistics for behavioral sciences". New York, McGraw-Hill.
- Ahmad, I. & Minkarah, I. (1988), "Questionnaire Survey on Bidding in Construction", *Journal of Management in Engineering*, 4, No. 3, pp. 229- 243.