

SELECTING CONSULTANTS THROUGH COMBINED TECHNICAL AND FEE ASSESSMENT: A HONG KONG STUDY

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Many clients increasingly employ a competitive bidding approach for recruiting construction consultants. However, the concept of relying on the bid price alone is problematic as a consultant submitting the lowest bid may not necessarily be able to complete the work satisfactorily, and any errors in design or supervision may in turn cost the client many times the savings accrued from a low consultant fee. A proper consultant selection process, which takes into account other quality-based criteria, is therefore necessary to ensure the quality of the consultants appointed. This paper examines a Combined Technical and Fee Assessment (CTFA) approach being used in Hong Kong (HK), and discusses the weaknesses of the current CTFA approach. The initial results indicate that the disparity in the usage and relative importance of assessment criteria between various clients and the over-reliance on expert judgement in assigning the weightings are the major concerns of the current CTFA approach.

Keywords: consultant, fee, quality, pre-qualification, selection.

INTRODUCTION

Construction projects are largely complex, costly and at times risky. Most clients would entrust consultants¹ to provide professional advice and services so as to safeguard their interests. Cooley (1994) advocated that good consultants should bring genuine and lasting values to the organizations they serve. Consultants therefore play a very significant role in the success of a project. Employing incompetent consultants may lead to problems in design, planning, cost control and supervision, which could in turn affect the time, cost, quality and risk levels of a project. It is crucial that suitable and capable consultants are selected for a project.

Despite that, fee competitiveness is a commonly used factor, and in many cases the key dimension, for consultant selection. Clients should however realize that the most qualified consultant firms may not necessarily offer the lowest price (Hattan and Lalani, 1997), and there is a possibility that the lowest bid is indeed from a newly established consultant or one who does not have adequate experience or resources to handle the project. Kasma (1987) argues that an error in the contract documents or inferior project supervision could cost many times the savings accrued from a low bid price. Therefore, the value of professional services should not be merely measured in monetary terms, but also consider consultants' experiences and resources that best suit a project (Parks and McBride, 1987).

¹ The consultants involved in a construction project may consist of architects, civil/structural engineers, building services engineers, quantity surveyors, etc.

Many public clients in advanced countries, such as the United Kingdom (Construction Industry Board, 1997; UK Government Procurement Group, 1997), United States (WSDOT, 1996), Australia (CIDA, 1993; Queensland Government, 1997a,b) and Hong Kong (HK), have specific procedures for assessing consultants' qualifications. This paper introduces the methods of consultant selection being used in HK – a Combined Technical and Fee Assessment (CTFA) approach. The weaknesses of the current CTFA practices are also examined in this paper.

METHODS OF CONSULTANT SELECTION

The methods of consultant selection can be broadly classified into two categories: (i) cost-oriented, and (ii) quality-oriented.

Cost-oriented methods

Cost-oriented methods emphasize the competitiveness of consultancy fees rather than other non-price factors. These methods are commonly used by both private and public clients for selecting consultants, as they have to maximize their profit and satisfy the requirements of public accountability respectively.

Limited competitive bidding: A limited number of consultants, usually 3-5, are selected and invited to bid for the consultancy services. The short-list may be compiled through a formal pre-qualification process or through previous experience and/or 'contacts' of the client. Final selection is normally based on the competitiveness of bid price alone.

Compulsory competitive tendering (CCT): CCT method requires the public authorities to compete with other consultant firms for professional services, such as design and supervision, even for projects within their own organization (Sparke, 1993). The aim is to improve the competitiveness of consultancy services and to enhance the efficiency of public services.

Negotiation: Client may negotiate with a single candidate or several consultants (competitive negotiation). Standard professional fee scales might be used as a basis for negotiation with percentage discounts being offered by the consultant.

Budget system: Client would establish a budget for the consultancy services, and the consultant are then required to submit technical proposals according to the services outlined by the client. Selection is based on the best technical proposal. The budget system is suitable for projects with a fixed budget on consultancy services or when it is difficult to identify the extent of services required, e.g. for feasibility study, claims evaluation and negotiation.

Quality-oriented methods

Quality-oriented methods however stress more on the quality standard, suitability and capabilities of consultants than on fee competitiveness. These methods are particularly suitable for complex and prestigious projects where high quality services are essential, or when innovative solutions are needed for solving special problems.

Non-price competition – usage of fee scale: Consultant is selected entirely on the likely quality of services provided, and the assessment is simply based on the technical proposals submitted. Remuneration may be calculated according to the fee scale published by the relevant professional institution(s) with or without any adjustments.

Design competition: Usually used on large, complex and/or prestigious projects where innovative design solutions are crucial. Proposals are evaluated and the consultants are then required to submit technical and fee proposals, and the selection is based on the merit and feasibility of each design solution.

Quality-based system: Consultants are pre-qualified and invited to submit technical proposals. Consultant submitting the best proposal is invited to negotiate the scope of services and consultancy fees. If agreement cannot be reached, the consultant ranked second will be considered (FIDIC, 1997).

Two-envelope system: Competing tenderers are required to submit their offers in two separate envelopes; the first envelope contains the technical proposal for the services while the second envelope contains the fee tender for the services (Leung, 1999). The first envelope is opened first and technical proposals of all consultants are compared. The fee proposal of the one with the most favourable technical proposal is then opened, and an offer will be made if the fee is satisfactory. Otherwise, the fee tender of the second choice will be opened until a satisfactory offer can be made.

RESEARCH METHOD

To understand the current practices of consultant selection, guidelines and procedures on consultant selection were collected from clients in HK and overseas. Initial discussions with experts in this field revealed that the public and quasi-governmental clients have more rigorous standards on consultant selection than the private sector, and hence these two types of clients were the focus of this study.

The consultant selection procedures in HK were collected through the Internet and interviews. Almost all government departments in HK follow the consultant selection procedures set out by the Works Bureau, and their procedures are publicized on the Internet. The authors also collected the information on consultant selection procedures of a major quasi-governmental client² in HK through interviews and discussions. This was used to carry out a comparison case study with the standard governmental procedures, in terms of approvals and weightings used for pre-qualification and tender evaluation.

COMBINED TECHNICAL AND FEE ASSESSMENT APPROACH

As mentioned earlier, good consultants should bring ‘better value’ to the client. ‘Value’ to clients is derived from providing *quality* consultancy services at a low *cost*. To take into account both the potential quality and cost (fee) of the consultancy services, a CTFA approach has been adopted by the public and quasi-governmental clients in HK. The CTFA methods essentially consist of three main stages: pre-qualification, short-listing, and final selection.

Pre-qualification stage

In order to bid for the government or quasi-governmental projects, consultants have to register in the approved lists of consultants of the respective clients. The pre-qualification process helps to establish whether an applicant has the required financial, technical, managerial and resource capabilities to provide a particular type of consultancy services. Figure 1 highlights the generic procedures of consultant pre-qualification adopted by government and quasi-governmental clients in HK.

² The name of the quasi-governmental client is not revealed to preserve anonymity.

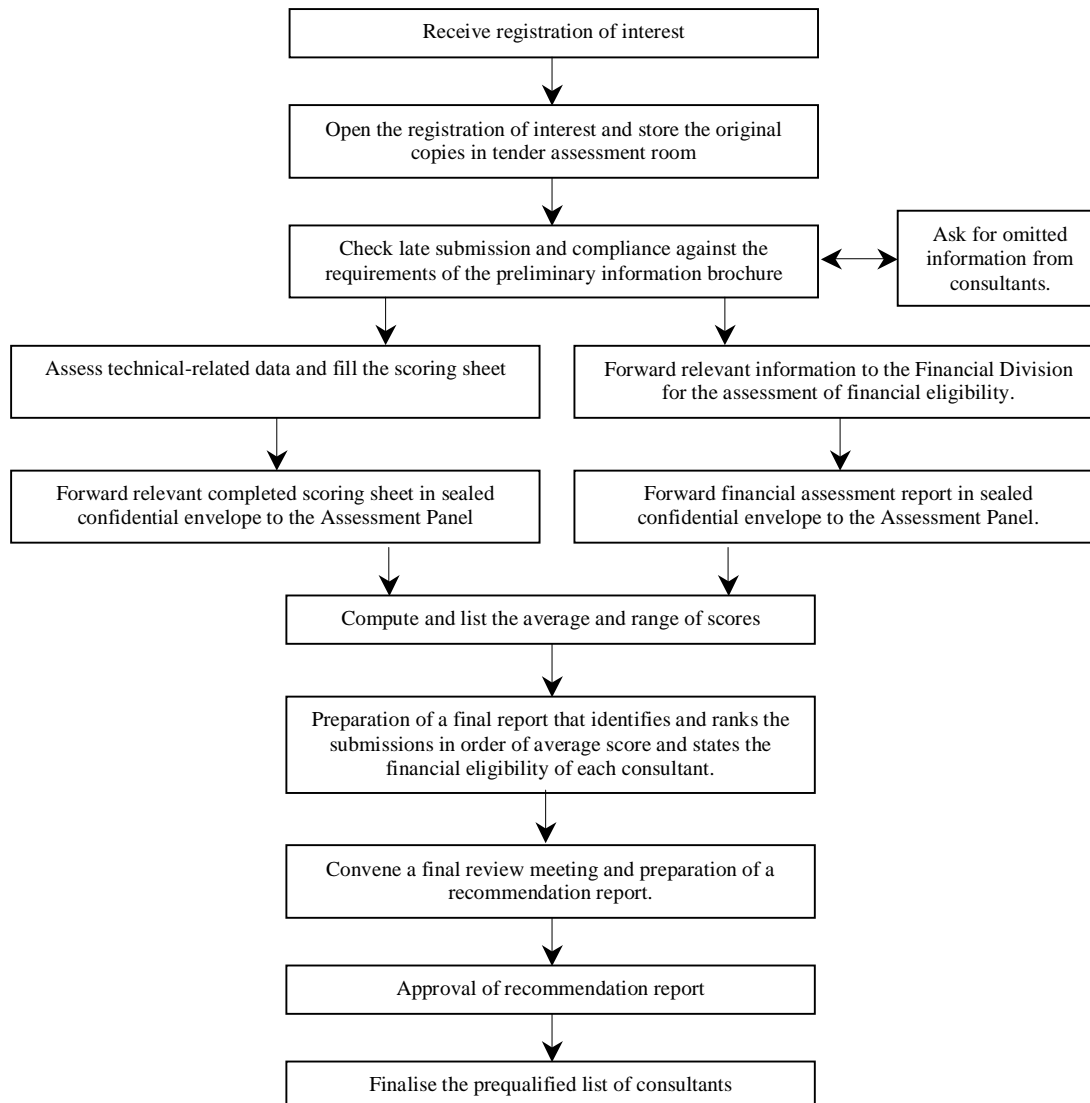


Figure 1: Procedures of consultant pre-qualification

Consultants who are interested to be pre-qualified are required to complete a form and submit the relevant information to the client for assessment. The assessment criteria used by the government and quasi-governmental clients being examined are pre-determined and related to task performance³ (*cf.* Ling, 2000), and these include consultant's experience, resources, performance and project management (see Table 1). Despite that, the importance of selection criteria varies from one organization to another. The public client is more concerned about the resources of the consultant (weighting: 30–40%). The quasi-governmental client, however, places a very strong emphasis (weighting: 50%) on consultant's relevant experience.

The consultants are assessed by the members of an Assessment Panel according to the pre-agreed selection criteria and marking system. In addition, financial information is assessed, and a financial assessment report outlining the financial eligibility of a consultant is prepared. A final score for each consultant is computed having taken into account the above factors and consultant's performance on previous projects.

³ Task performance relates to the proficiency and skill in job-specific tasks.

Table 1: Importance of pre-qualification criteria

Selection Criteria	Weightings (%)	
	Government	Quasi-governmental
Consultant's experience	20-30	50
Consultant's resource	30-40	30
General performance record	10-20	10
Project management	10-20	10

Short-listing stage

Since there could be many consultants on the approved list, it is necessary to reduce the number of bidders to a manageable size, and this is done at the short-listing stage. Three to five consultants are selected from the relevant approved list of consultants and they will be invited to bid for the assignment. Since the consultants on the approved list are deemed to be both capable and suitable for the project, the short-list is compiled according to their current workload and recent performance. Once the tender list is compiled, the tendering process will commence.

Final selection stage

Short-listed consultants are required to submit their technical and fee proposals based on the client's brief and the project's requirements (see Figure 2 for detailed procedures). This applies to all public sector projects irrespective of their sizes and natures. The final selection stage is to identify the best-qualified consultant firm to provide the professional services for the project at the lowest cost.

Technical Proposals

A technical assessment strives to identify whether a consultant has the necessary skills, resources and proven experience to complete the project satisfactorily, and the criteria used include consultant's experience relevant to a particular type of project, resources, etc. In addition, criteria related to contextual performance⁴, such as approach to ensure the cost effectiveness, partnering, etc., are also considered by the clients based on engineering judgements.

The technical proposals are assessed by the Assessment Panel based on pre-agreed selection criteria and marking scheme. As shown in Table 2, the most important criterion for the quasi-governmental organization is consultant's experience (40%), while consultant's resources are the most important consideration of the public client (25-40%) in this comparison case study. This highlights a difference in the perception of clients on the relative importance of different assessment criteria.

Fee proposal

The fee proposal includes a lump-sum fee figure, breakdowns of fee among stages of agreement and among disciplines or phases of project, make-up of lump-sum fee for staff cost, time-charge multiplier for salary costs and resident site staff on-cost rates. The assessment of the fee proposals will be carried out after the technical proposals are examined so as to eliminate any biases when assessing the latter. The fee scores are calculated as a percentage of the lowest received tender. The more expensive the tender is, the lower the fee score a consultant will receive.

⁴ Contextual performance relates to the soft skills, e.g. to interact and communicate with one another, and their method of assessment can be found in Ling *et al.* (2000).

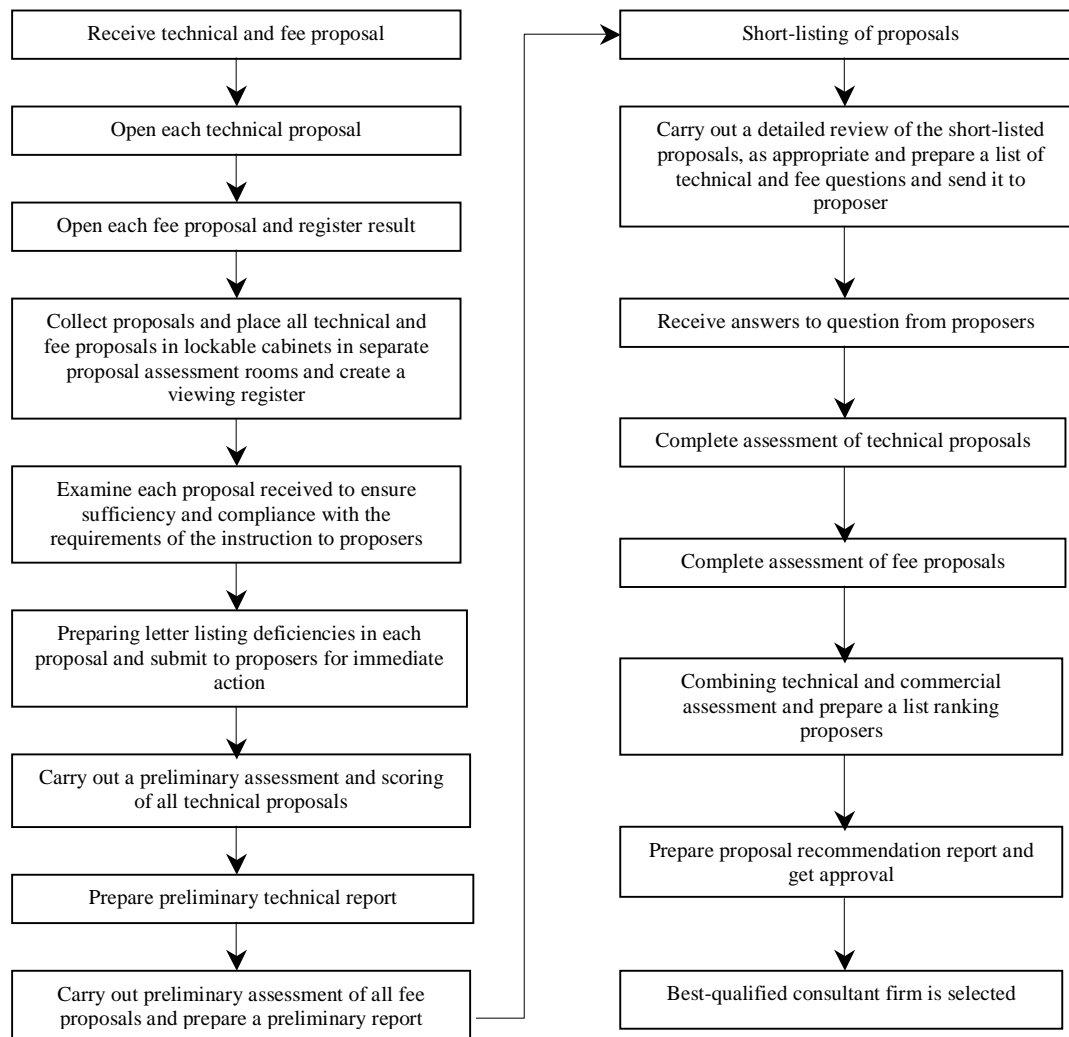


Figure 2: Procedures for assessing technical and fee proposals

Combined technical and fee assessment

After the assessment of the technical and fee proposals, the scores are combined. The weightings between the technical and fee depend on the nature and complexity of projects, and the standard range of technical/fee weightings of the public client are illustrated in Table 3. The weightings are made known to the consultants at the time of tendering, so that they could appreciate the importance of technical proposal and plan accordingly. As shown in Table 3, the technical proposals of the consultants carry higher weighting than the fee proposals in all categories indicating that the public client is more concerned about the capabilities of the consultants than the fee.

DISCUSSIONS

The technical proposal is obviously more important than the fee proposal for all services in the current CTFA approach. However, the relative weightings of criteria used for technical assessment used by the public and quasi-governmental clients are different. In addition, the public client allows the assessors to determine suitable weightings for technical-related criteria and technical/fee assessment based on the pre-determined ranges. There is a chance that the weighting could seriously affect the score and hence a consultant's opportunity to win an assignment.

Table 2: Criteria used for assessing the technical proposal

Description	Weightings (%)	
	Government	Quasi-governmental
Consultant's experience	5-10	40
Local experience		
International experience		
Relevant to this project		
Organization and staffing	25-40	17.5
Experience and number of staff		
Organization structure		
Computer facilities		
Responsibility of key staff		
Current workload		
Methodology and resource planning	15-30	12.5
Technical approach		
Programme		
Contract management and site supervision		
Approach to cost effectiveness	15-20	10
Ability to produce cost-effective design		
Approach to achieve cost-effectiveness		
Response to brief	15-25	--
Understanding of objectives		
Identification of key issues		
Understanding of key requirements		
Innovative proposals		
Quality assurance	--	5
System assurance	--	5
Partnering	--	10

Table 3: Weightings of the technical and fee proposals of the public client

Type of project	Technical : Fee
Multidisciplinary projects that requires special emphasis on technical input, including complex feasibility studies, investigation-stage consultancies and design and construction consultancies of above average complexity	80% : 20%
Less complex feasibility studies and investigation-stage consultancies and design and construction consultancies of average complexity	70% : 30%
Technically straightforward design and construction consultancies	60% : 40%

To examine the effects of the different weighting perceptions between the two clients, a hypothetical case is set up and used for assessment. Four criteria in common to both clients are used for this exercise. As for the public client's weightings, the upper ranges were used in this study. Table 4 shows the details of the hypothetical case and the weighted average scores of each case, as normalized to a 0-10 scale.

As shown in Table 4, the weighted average scores of the quasi-governmental and public clients are quite different in this exercise. Consultant B (weighted average = 4.3) is the preferred consultant for the public client, but this consultant is the worst one (weighted average = 3.7) under the quasi-governmental firm's analysis. On the other hand, Consultant A scores highest (weighted average = 4.2) in the quasi-governmental client, while the public client's assessment has resulted in the lowest score (weighted average = 3.5) for this firm.

A similar analysis was conducted basing on the lower and upper ranges as stipulated by the public client, and the results are shown in Table 5. In this exercise, the most preferred firm is Consultant B if the assessment is based on the upper ranges of the public client weightings (weighted average = 4.3). However, the results indicate that

Consultant A is preferred when the lower ranges of weightings are used (weighted average = 3.6).

Table 4: Weighted scores based on the weightings of both clients

Weightings		Assessment criteria	Consultant A			Consultant B			Consultant C		
G	Q-G		S	G	Q-G	S	G	Q-G	S	G	Q-G
20	10	Cost effectiveness	3	60	30	4	80	40	3	60	30
30	12.5	Programme	4	120	50	4	120	50	4	120	50
10	40	Experience	5	50	200	3	30	120	4	40	160
40	17.5	Staffing	3	120	52.5	5	200	87.5	5	200	87.5
100	80	Weighted total		350	332.5		430	297.5		420	327.5
		Weighted average		3.5	4.2		4.3	3.7		4.2	4.1

Note: G=government, Q-G=quasi-governmental, S=score

Table 5: Weighted scores based on the lower and upper ranges of the public client

Weightings		Assessment criteria	Consultant A			Consultant B			Consultant C		
L	U		S	L	U	S	L	U	S	L	U
15	20	Cost effectiveness	3	45	60	4	60	80	3	45	60
15	30	Programme	4	60	120	4	60	120	4	60	120
5	10	Experience	5	25	50	3	15	30	4	20	40
25	40	Staffing	3	75	120	5	75	200	5	75	200
60	100	Weighted total		215	350		200	430		200	420
		Weighted average		3.6	3.5		3.3	4.3		3.3	4.2

Note: L=lower range, U=upper range, S=score

CONCLUSIONS

In this paper, the CTFA approach as used in HK is introduced. The CTFA consists of three main components, namely pre-qualification, short-listing and final selection. Clients in HK have realized the importance of criteria pertinent to contextual performance, and have considered some soft skills of consultants during the technical assessment process. However, to ensure a suitable consultant is selected, more criteria related to consultants' contextual performance (*cf*: Ling *et al.*, 2000) during both the pre-qualification and final selection stages should be considered.

Different organizations have different perceptions on the importance of criteria used for pre-qualification and technical assessment. In the comparison case study in HK, the public client places greater emphasis on consultant's resources, while the quasi-governmental client considers consultant's experience as more important in both the pre-qualification and technical assessment processes. Both approaches have their merits and may be based on the types of projects handled by each organization, for example, the quasi-governmental client deals with a specific type of project, where experience is important, whereas the government client needs to cater for a greater variety of project types for which the basic resources are important. Furthermore, the 'range' provides a suitable flexibility for the latter as well.

Hypothetical cases were used to illustrate the effects of using different weightings on the technical assessment. The results indicated that the preferred consultants may turn out to be totally different between the two clients. Another analysis, which was based on the lower and upper ranges set by the public client, also revealed a difference in the choice of consultant. Although the same Consultant A emerged on top in both the quasi-governmental client approach and the lower range approach of the government client, this was just a coincidence in this simplistic hypothetical case. The evident

differences in weightings could very well yield different outcomes in other cases. The outcomes are therefore quite sensitive to the subjectively chosen weightings. Since the technical proposal is so crucial in the CTFA approach, it is important to ensure that the weightings are fair and truly representing the perception of the client.

In addition, a number of technical-related criteria, such as consultant's experience, approach to cost effectiveness, response to brief, etc., are qualitative in nature. The assessment of these criteria requires the subjective input of assessors, which may not correspond to the significance of decisions being undertaken. Further studies are being conducted by the authors to examine the pre-qualification and technical-related criteria and their importance, and ways by which to reduce the subjectivity of assessment. The results of these studies will be presented when available.

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