



Establishing the Idea Procurement Arrangement (PAO) that Best Meet The Needs of Malaysian Private Sector Construction Clients

Wan Norizan Wan Ismail¹, Siti Sarah Mat Isa², Syarifah Nur Nazihah Syed Jamalulil³, Nurul Huda Muhamad⁴, Siti Nor Faizah Ab Malek⁵

Department of Quantity Surveying, Faculty of Architecture, Planning and Surveying, UiTM (Perak), Seri Iskandar, Perak, Malaysia

Corresponding email wanno134@perak.uitm.edu.my, sitis366@perak.uitm.edu.my, syari5008@perak.uitm.edu.my, nurul885@perak.uitm.edu.my, sitin174@perak.uitm.edu.my

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Abstract

Procurement is a strategy to satisfy the client's needs. Basically, clients in the construction industry set their objectives and requirements and the role of the consultant team is to turn those objectives and requirements into reality. Unfortunately, in recent years, there have been many concerns on the consultant team's ability to deliver projects that meet the client's requirements. Research has shown that client's requirements have not been properly addressed by the construction industry players due to wrong choice of procurement systems. The purpose of this research is to identify the criteria that encompass the client's requirements in procuring a construction project and attempts to establish the ideal procurement arrangement option that best meets the requirements of the clients. The investigation on the most popular procurement arrangement option adopted in the Malaysian construction industry was made as well. Investigations were limited to the views expressed by private sector construction clients, consultants and contractors, registered with their respective umbrella organizations in Malaysia. The descriptive survey method was used, which comprised qualitative data gathering via pilot interviews and quantitative data gathering via structured questionnaires. Content analysis, multi-attribute analysis and rank correlation test was used in the analysis of the data. Based on the analysed data, a framework was established in determining the ideal procurement arrangement option (PAO) which capable to fulfill most of the private sector clients' requirements in procuring their construction project. Results showed that clients' would prefer a procurement arrangement option that can ensure the delivery of the project within time, budget and quality/specification targets. Other priority needs include fixed price tender, competitive or lowest price tenders, separate service provider for the design and management of the construction, life cycle cost, and risk preference and to accommodate variation orders without incurring financial penalties. It emerged that in the main, Construction Management type of procurement arrangement option is the ideal procurement route that could best meet the needs of the Malaysian construction clients

INTRODUCTION

Procurement arrangement option provides an avenue for bringing together various service providers in a construction project, and for identifying and fulfilling the priority needs of the client for procuring the building or facility (Mbachu and Nkado, 2006). Furthermore, Kwakye (1994) is of the view that the successful execution of construction work depends on the procurement approach adopted. This is because, “the key to procurement is to identify the priorities in the objectives of the client and to plan a path, a procurement route, that will be the most appropriate to realize the objectives” (Turner, 1990).

Construction clients in Malaysia and elsewhere prefer traditional procurement arrangement option to other forms, even in conditions where the use of the traditional procurement arrangement are inappropriate. For instance, Faisal and Adnan (2002) argues that the traditional procurement arrangement is frequently used in Malaysia due to its appeal as a means of achieving fixed or lowest price for the construction of the project. However, Tan (1985) opined that the traditional method of project implementation in Malaysia as being too lengthy and needs a radical overhaul and reconstructing to make the process more efficient. On the other hand, Henriod (2007) identifies the inherent disadvantages of this system are could lead to a much longer development period as well as engendering adversarial relations amongst the project team. All those examples show that the needs of construction clients are not adequately addressed by the prevailing procurement arrangement options.

The ideal procurement arrangement option that could be adopted by clients which could provide solutions to the procurement arrangement related problems in the construction industry is one that balances the priority needs of the client with the practical issues clients are grappling with, in their decision making and selection processes. Therefore, there is the need to research the key variables underlying the ideal procurement arrangement option that would best meet the client requirements, and wider issues influencing choice of procurement arrangement option in the Malaysian construction industry.

LITERATURE REVIEW

The choice of the appropriate procurement system is vitally important in ensuring the success of any construction project as the use of inappropriate procurement arrangement is believed to result in project failure (Chang and Ive, 2007; Mbachu and Nkado, 2006; Kwakye, 1994). Procurement is crucial as it determines the overall framework for construction, embracing the structure of responsibilities, risks and authorities for construction practitioners (Zuo et al, 2006).

From a strategic perspective, procurement can be seen as a strategy designed to satisfy the client’s development needs (Moore, 2002). Wrong choice of procurement arrangement option at the onset could significantly constrain the efforts of the project team to achieve the set project objectives and satisfy the client. One possible reason for this could be the lack of a universally applicable set of criteria to determine the appropriateness of a procurement arrangement option (Ireland, 1985) – i.e. the challenge of having a universally acceptable criteria for establishing the procurement arrangement option that balances the ideal with the practical realities in the selection process. This aligns with the Latham Report (1994) that, “Clients are at the core of the process and their needs must be met by the industry”. Unfortunately, in recent years, there has been much inquiry on the construction industry’s ability to deliver projects that meet the client’s requirements.

The overarching aim of this study was to identify the criteria that encompass the ideal and practical needs of the Malaysian construction clients for their projects, and which subsequently would become the valuable ingredients in establishing an ideal procurement arrangement option (PAO) that best meet the needs of Malaysian construction clients

CLASSIFICATION OF PROCUREMENT ARRANGEMENT OPTION

Procurement in construction industry differs markedly from the procurement of goods and services in the production and consumer services sector where an immediate choice can generally be made in term of cost and quality; while the procurement of building is complex and involves the interaction of the client, design team, contractors, suppliers and various statutory/public interest bodies in the process from inception to completion (The Scottish Executive, 2005).

Alhazmi and Mc Caffer (2000) observe that a number of different procurement arrangement options had increased over the last few decades. However, no standard definition and classification of procurement

approaches has become generally acceptable (Hibberd, 1991). This is because there are no formal structures or agreement on the terms and the underpinning criteria. According to Rowlinson and Mc Dermott (1999) in all of the attempts by previous researchers to distinguish between procurement arrangement options, it is forgotten that they are actually more similar than different. In this study, the procurement systems are classified into the following as gleaned from the literature:

- Traditional
- Design and build
- Total package
- Management oriented
- Collaborative

PROCUREMENT NEEDS

Basically, procuring a construction project within the designated time, cost and quality is the prime objective of clients (Mbachu and Nkado, 2006; Raftery, 1999; Luder, 1986). Latham (1995) identify that client's needs and expectations in relation to construction projects will include the following:

- i) Value for money
- ii) Pleasing to look at
- iii) Free from defects on completion
- iv) Fit for purpose
- v) Supported by worthwhile guarantees
- vi) Reasonable running cost
- vii) Satisfactory durability

Mbanjwa (2003) adds cost and quality as part of client's needs in the procurement process. However, due to construction projects differing in nature, size and complexity, clients may attach different levels of importance to each of the three key client needs. For instance, Mbanjwa (2003) notes as follows:

"Cost, for example, may need to be traded off on a project that requires very high standards of quality. Time, on such a project, may also be traded of in order to ensure that the high quality levels expected from the project are indeed achieved." (p.10).Mbanjwa (2003)

THE MOST POPULAR PROCUREMENT ARRANGEMENT OPTION

There is a consensus of opinions by all researchers and building practitioners around the world that the traditional procurement arrangement is the most popular and widely adopted by this industry to procure a construction project (For example Latham (1994); Taylor et al (1999) Richards (2005)). The popularity of the traditional procurement arrangement is due to a range of benefits but the most prominent reasons are; most clients and contractors have wide experience of it; the system offers some price certainty if the design has been fully scoped out prior to construction; and it gives the client greater control of design as by default, the client controls the design team.

SELECTION OF AN IDEAL PROCUREMENT ARRANGEMENT OPTION

Many attempts have been carried out to develop various models to assist in decision of the selection procurement arrangement option process. Unfortunately, according to Chan (2007), none of those models has been widely adopted in practice. The most significant possible reason is the lack of a universally applicable set of criteria to determine the appropriateness of a procurement arrangement option (Ireland, 1985)

In the process of procurement arrangement option selection, Rowlinson (1999) suggests the client's guides to assist in procurement arrangement option selection that produced by NEDO (1985). This guide lists nine separate criteria by which the client is expected to set priorities for its construction project. The criteria are as follows:

- Time: is early project completion required?
- Certainty of time: is project completion on time important?
- Certainty of cost: is a firm price needed before any commitment to construction is given?
- Price competition: is the selection of the construction team by price competition important?
- Flexibility: are variations necessary after work has begun on-site?

- Complexity: does the building need to be highly specialised, technologically advance, or highly serviced?
- Quality: is highly quality of the project, in terms of material and workmanship and design concept, important?
- Responsibility:
 1. Is single-point responsibility to you, after the briefing stage, desired?
 2. Is direct professional responsibility to you from the designers and cost consultants desired?
- Risk: is the transfer of the risk of cost and time slippage from you important?

However, the author noted that in certain circumstances, it may be impossible at the outset clearly to define the key issues of procurement criteria. Thus, in such a situation it must be borne in mind that the selection process can only be a satisfying process rather than providing a definite answer to the procurement arrangement question.

RESEARCH METHODOLOGY

A descriptive research can use a variety of data gathering techniques and for this research unstructured interview and structured questionnaire were used as the medium in providing reliable data for accomplish the objectives of the study, which were administered to the construction industry via survey. The conceptualisation of the literature review framework was carried out where the data and information were sought from various sources such as books, journal, magazines, working papers, published and unpublished thesis, internet and etc.

The data needed are opinions of respondents that gathered from the observation via questionnaire surveys. Prior to the sending of questionnaire, the pilot interviews were conducted with a convenient sample of private construction clients and consultants team who registered under their respective umbrella organization as the target populations.

RESULT AND ANALYSIS

Following the pilot research process, postal and self-administered questionnaire surveys were carried out. The participants in the survey were respondents from private construction clients and consultants team who registered under their respective umbrella organization which operates through their main office in the Klang Valley. A total of 100 questionnaires were distributed. However, only 40 questionnaires were returned by the cut-off date, resulting in a 40% response rate. Out of total respondents, 13% were private clients and 27% were consultants. The views were therefore predominantly those of consultants. This bodes well for the quality of the research findings, as the inputs were mainly from those who are responsible for giving procurement advice in the construction industry. The respondent's categories encompass property developer (30%), property/port folio investor (7.5%), owner occupier (5%) and 57.5% from consultants.

Table 1 shows the five frequently used categories of properties which are Commercial/retail/office (25%), Schools/institutional (15%), Industrial (15%), Residential (45%) and others (0%). The survey indicates that Residential was the largest property procured by the respondents followed by procurement of Commercial/retail/office, Industrial and Schools/institutional. Most of the Schools/institutional building are mainly procured by public agency such as the government while other properties are normally procured by private agency.

THE CRITERIA THAT ENCOMPASSES THE PROCUREMENT NEEDS OF THE MALAYSIAN PRIVATE CONSTRUCTION CLIENTS.

There were thirteen (13) criteria of clients' procurement needs identified that gained from extensive review of literature and pilot interviews. The respondents were asked to rate the level of importance of each criteria based on their capacity as the people that have wide experience in construction industry.

TABLE 1

CATEGORY OF PROPERTY THAT PROCURE BY RESPONDENTS

Properties Procured	Frequency	Percentage
Commercial/retail/office	5	25%
School/Institutional	3	15%
Industrial	3	15%
Residential	9	45%
Others	-	-
TOTAL	20	100%

Table 2 shows the rating scored by private clients' and consultants' respondents on the level of importance of each procurement criteria. With the mean rating (MR) value of 2.83, zero cost overrun, lowest price tender, high quality, risk preference, on time completion and flexibility to variation were perceived to be the significant important criteria for clients' respondents that form their decision to procure a construction project. A closer look at these indicates that the wishes rated by clients' respondents can be classified in terms of cost (zero cost overrun, lowest price tender, variation), time, quality and risk objectives. This showed that the factor of cost, time, quality and risk were the prime objectives of private clients in initiating a construction project. This finding accords with the study by Luder (1986), Raftery (1999) and Nkado (1991) where the "worth" of a construction project mostly depends on these factors.

TABLE 2

PRIORITIZATION OF CLIENTS' PROCUREMENT NEEDS (CLIENTS' RESPONSES)

Procurement Assessment Criteria	Level of Important						TR	MR	Ranks	Result
	I 3		S.I 2		N.I 1					
	No	%	No	%	No	%				
Cost ¹	33	83%	7	18%	0	0%	40	2.83	1	I
Time ³	25	63%	15	38%	0	0%	40	2.63	2	I
Project control ²	23	58%	17	43%	0	0%	40	2.58	3	I
Complexity ⁴	20	50%	18	45%	2	5%	40	2.45	4	I
Quality ⁵	17	43%	23	58%	0	0%	40	2.43	5	I
Price certainty ⁶	13	33%	27	68%	0	0%	40	2.33	6	S.I
Lowest price ⁷	5	13%	35	88%	0	0%	40	2.13	7	S.I
Variation ⁸	4	10%	36	90%	0	0%	40	2.10	8	S.I
Life cycle costs ⁹	0	0%	40	100%	0	0%	40	2.00	9	S.I
Limited disruptions ¹⁰	0	0%	40	100%	0	0%	40	2.00	9	S.I
Risk preference ¹¹	0	0%	40	100%	0	0%	40	2.00	9	S.I
Project management responsibility ¹²	0	0%	35	88%	5	13%	40	1.88	12	S.I
Non-financial issues ¹³	0	0%	5	13%	35	88%	40	1.13	13	N.I

1. Zero cost overrun

2. Need to be in control, or actively involved during the implementation of the project

3. On time completion

4. Need for technically advanced construction or highly serviced building

5. Compliance with the specifications; high quality job

6. Need to have a reliable price estimate for the completion of the project at the onset

7. Need to have competitive tenders for the job

8. Flexibility to alter the project requirement at any stage

9. Need for reasonable running costs at the operation phase

10. Need to minimize disruptions to ongoing business activities during the construction phase

11. Need to pay someone to take the risk of cost and time slippage

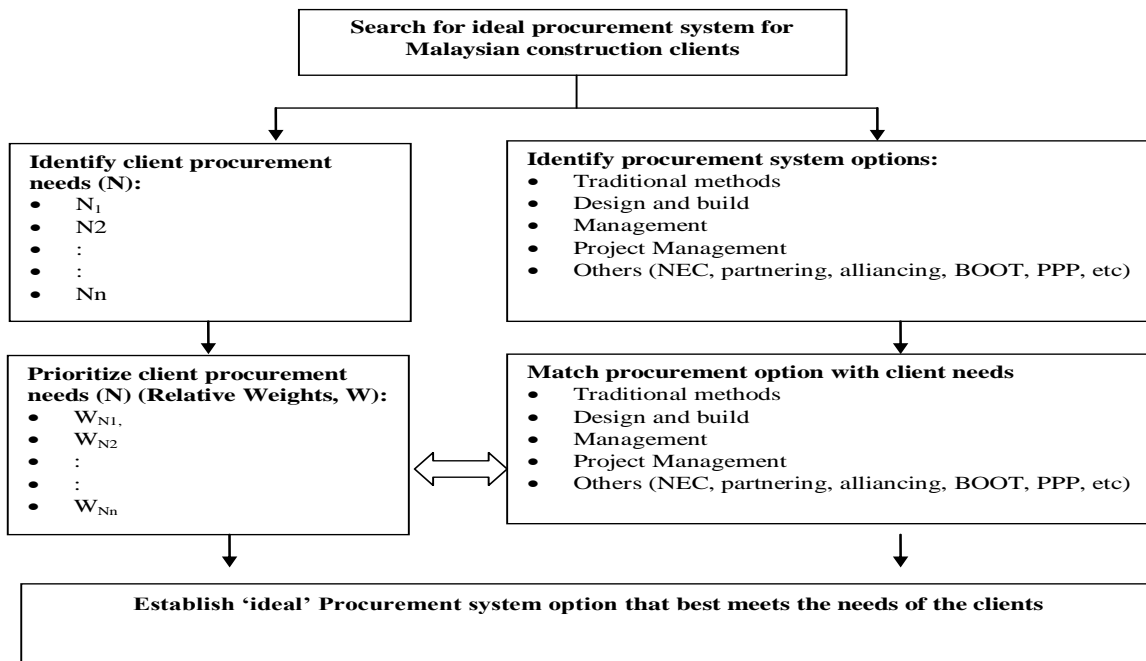
12. Need to delegate project management responsibility to other

13. Need to consider socio-cultural, political and non-financial issues as important parameters that inform decisions in the procurement process

IDEAL PROCUREMENT ARRANGEMENT OPTIONS (PAO)

Figure 1 shows the flow chart process for establishing the Ideal Procurement Arrangement Options (PAO). A modified version of Turner (1990) matrix chart for choosing the procurement arrangement option that best meets the needs of client is adopted.

FIGURE 1
ESTABLISHMENT OF IDEAL PROCUREMENT SYSTEM'S FLOW CHART



The Appendix 1 shows a list of client procurement assessment criteria incorporating additional needs established at the pilot interview stage. The list of procurement arrangement options (PAOs) was increased to include additional types identified during the interviews. On the table, an 'X' is marked in a matrix cell where a given PAO meets the preferences of the client in relation to the preference eliciting optional answers. By summing the 'Xs' under each PAO column, the ideal procurement system is found as that with the highest sum of 'Xs'. In other words, this indicates the PAO that best addresses the needs of clients in the procurement process. The total score of each PAO where the properties of each PAO were matched with clients' preferences in procurement based on private clients' and consultants' responses. The highest score which matched with private clients' needs was considered the most ideal procurement arrangement option which believes could be applied in Malaysian construction industry.

By referring to the Appendix 1 it can be concluded that, Construction Management was the most ideal procurement arrangement option that are capable to cater and fulfill almost all Malaysian private sector clients' needs. This system was perceived to offer the client more control over the project, expedites the construction process through encouraging overlapping of design and construction phases, reduces adversarial relationship, and ensures better control on variations. However, this arrangement option is incapable of offering price certainty and places more risks on the client due to lack of established standards benchmarking quality of workmanship and outputs. Morledge (2006) noted that this procurement arrangement option places most risks on the client's shoulders, including the design and construction risks.

CONCLUSION

It is vital to understand the clients' procurement needs and expectations as well as the variety procurement arrangement option available in the industry in order to establish an ideal procurement system that best meets their needs. The result from the analyses on the series of clients' procurement criteria that encompass the ideal and practical needs of the Malaysian private construction clients for their projects were zero cost overrun, on time completion, quality, project control, lowest price tender, flexible variation, risk preference, price certainty, complexity, limited disruption, life cycle cost, project management responsibility and non-financial issues.

It emerged that, by referring to the ideal procurement arrangement option (PAO) that best meets the needs of private sector construction clients in Malaysia concluded that Construction Management procurement system was the ideal procurement arrangement option which offers a range of benefits that could accommodate the client objectives and requirements.

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Appendix 1

PROCUREMENT AGREEMENT OPTION (PAO)

Seq = sequential; Accel = Accelerated; Comp = Competitive; D&C = Design & manage; MC = Management contracting; CM = Construction management; Cr PM = Contractor prjk management; CsPM = Consultant prjk management; BOOT = Build-operate-own-transfer; Trky = Turnkey; Ptnrg =Partnering; S.Allnc=Strategic alliancing

Procurement assessment criteria (PAC)	Possible answer	No	%	*Procurement arrangement options (PAO)													
				Traditional		Design & build			Mgt		D&M		Total Package		Collaborative		
				Seq	Accel	Direct	Comp	D & C	MC	CM	Cr PM	CsPM	BOOT	Trky	Ptnrg	S.Allnc	
TIMING ¹	Important	20	50		X	X	X	X	X	X	X	X	X	X	X	X	
CONTROLLABLE VARIATION ²	Definitely not	11	28			X	X	X							X		
COMPLEXITY ³	No, just simple	11	28			X	X								X		
QUALITY ⁴	Good but not special	15	38	X	X	X	X	X	X	X	X	X	X	X		X	
PRICE CERTAINTY ⁵	Yes	17	43	X		X	X	X	X	X	X	X			X		
COMPETITION ⁶	Yes	13	33	X			X	X	X	X	X	X	X	X			
DIVISION OF RESPONSIBILITY ⁷	One firm	25	63			X	X	X			X	X	X	X		X	
PROFESSIONAL RESPONSIBILITY ⁸	Yes	18	45	X	X				X	X		X					
RISK PREFERENCE ⁹	Share agreed risk	10	25	X	X				X						X	X	
OPERATIONAL COSTS ¹⁰	Yes	12	30	X						X		X	X		X	X	
SOCIAL ASPECTS ¹¹	No	14	35	X		X	X	X	X	X	X				X		
ON GOING BUSINESS DISRUPTIONS ¹²	Yes	20	50							X	X	X			X	X	
CONTROL OVER PROJECT ¹³	Yes	15	38		X					X	X	X			X	X	
Total				7	5	7	8	7	7	9	8	8	5	8	6	7	

1. How important is on-time completion to the success of your project?
2. Do you foresee the need to alter the project in any way once it has begun on site?
3. Does your building (as distinct from what goes in it) need to be technically advanced or highly serviced?
4. What level of quality do you seek in the design and workmanship?
5. Do you need to have a firm price for the project construction before you can commit it to proceed?
6. Do you need to choose your project team by price competition?
7. Can you manage separate consultancies and contractors, or do you want just one firm to be responsible after the briefing stage?
8. Do you want direct professional responsibility to you from the designers and cost consultants?
9. Do you want to pay someone to take the risk of cost and time slippage from you?
10. Do you have a need for reasonable running costs for your building in the operation phase?
11. Are cost-benefit, socio-cultural and political issues important parameters that inform your decisions in the procurement process? (ROI: Return on investment)
12. Do you have a need to minimise disruptions to ongoing business activities during the construction phase?
13. Do you have a desire to be in control, or actively involved during the implementation of the project?