

Revisiting Client Roles and Capabilities in Construction Procurement

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Abstract

The need to improve performance of procurement in construction has resulted in several structural changes and re-arrangements for the acquisition of the client's development scheme. Much of these changes have focused on the contribution and roles played by parties other than the client to the delivery of projects. The role of the client during these changes has evolved from one of a passive fund provider to an increasingly active participant and hands-on management in some of the procurement arrangements. However, there is little evidence that these evolving roles have been met with a commensurate progress in project delivery performance for client organisations. There is evidence that lack of progress is hindering project performance. Simultaneously, research has so far given less attention to the changes in client's roles over time. This does not only call for a clarification of contribution the client makes in delivery of projects, but also highlights the need to re-visit the client roles under different procurement systems, and at different project phases, including pre-construction, construction and operational.

This paper presents a review of common procurement arrangements in the construction industry and the changing roles of the client's organisation. The paper also explores the client's role in each of these arrangements to establish what capabilities enable effective project delivery and performance. The identification of the capabilities is achieved by mapping client roles against procurement arrangements. The analysis of mapping exercise shows that the client has two types of capabilities for the delivery of every project: a primary capability required by all clients; and secondary one that is specific to a particular procurement case. The primary capability could serve as the minimum threshold for self-evaluation by client organisations.

Key words: Revisiting, Client Roles, Capabilities, Construction, Procurement.

1. Introduction

Recent effort in improving procurement performance has resulted in several changes in the client and the procurement systems. However, much of these changes have focused on the contribution and roles played by parties other than the client to the delivery of projects. For example there is growing direction of outsourcing some of the public client's activities to the private sector by adopting integrated procurement systems (Al-Jibouri & Ogink 2009).

The role of the client during these changes has evolved from one of a passive fund provider to an increasingly active participant and hands-on management in some of the procurement arrangements. However, there is little evidence that these evolving roles have been met with a commensurate progress in project delivery performance for client organisations. There is evidence that lack of progress is hindering project performance. Even though some improvement took place the construction industry, it has not been continuous and it has been mainly focusing on price rather than value (Smyth, 2010).

The increase direction toward integrated procurement systems to improve procurement performance requires close collaboration between all involved parties mainly the client, designer and contractor. Both the designers and the contractors' roles have received greater attention than those of the client in the delivery of the construction projects. Furthermore, research has so far given less attention to the changes in client's roles over time. This highlights the need to re-visit the client roles under different procurement systems, and at different project phases, including pre-construction, construction and operational.

This paper presents a review of common procurement arrangements in the construction industry and the changing roles of the client's organisation. The paper also explores the client's role in each of these arrangements to establish what capabilities enable effective project delivery and performance. In working toward this objective, a detailed review has been conducted to establish the role of the client throughout the procurement life cycle. The following sections of this paper provide an overview of the common procurement, research method, finding and discussion and finally a conclusion.

2. Procurement

It is estimated that the infrastructure investment required to sustain the population growth until 2020 is about USD 5 trillion per year (World Economic Forum 2013). With the increasing value and complexity of construction projects, several procurement arrangement has been developed to aid the public clients in selecting design, construction, management, operation and financial services procurement packages (Kumaraswamy & Dissanayaka 1998). According to (Masterman 2002) selecting the most appropriate procurement system is one of the critical success factors in construction industry. Simultaneously, they clarified that the inefficiency of client management is a key parameter affecting the project performance. Masterman (2002) highlighted that client's organisation characteristics and culture is a key factor in developing a sound procurement strategy.

The physical construction procurement highly depends on the efficiency and quality of information provided by the public client during the tendering stage. Laryea (2011) argued that the information provided by the client is not always clear and adequate. According to Watermeyer (2011) improving the construction phase performance starts at the design stage. However, both the public clients and designers facing difficulties in preventing design errors (Lopez et al. 2010).

Public Client is a major procurer and has the ability to influence the market and stimulate innovation (Knutsson & Thomasson 2013). The management of the project requirements and design are two main tasks that influence all subsequent procurement activates. However due to public client limited resources some of these activities are outsourced to consultancy firms and with several changes in the procurement systems project design, management, operation and even financing has been transferred to the private sector.

The procurement of a development scheme commences with the identification of needs and completes when the agreed product or/and services are delivered (Watermeyer 2011). The client establishes a set of relationship with different organisations during the life cycle of the procurement process. The client plays a key role in bringing various parties together at different stages of the project by selecting one the common procurement arrangement. In general, there are four main procurement arrangements clients use in delivering construction projects (Tookey et al., 2001; Masterman, 2002; Morledge & Smith 2013) which are: Separated, Integrated, Management and Public Private Partnership.

There are further sub-systems under each of these procurement routes and appropriate packaging of different services is crucial in achieving efficiency in construction project (Kumaraswamy & Dissanayaka 1998). Figure 1 illustrates the main procurement arrangements and subsystems.

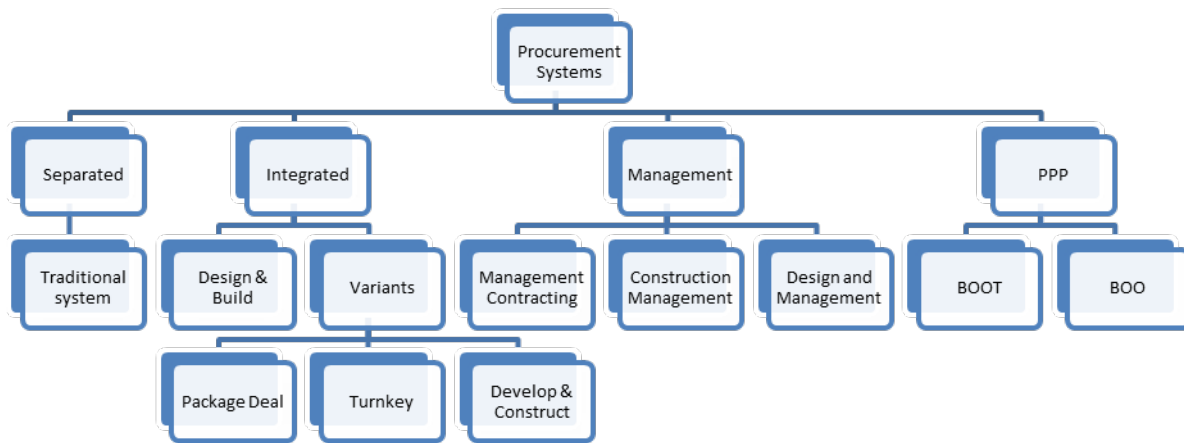


Figure 1: Main procurement arrangements and subsystems

2.1 Separated Procurement

The separated procurement system is the traditional contracting method that separates the responsibility of the design from the construction. The client in the separate procurement approach involves in four main phases: design development, construction tender, construction delivery and finally operation and maintenance. The client appoints independent consultants to design and prepare the construction tender document and then supervise the contractor work. The client normally procured professional consultancy services to plan, develop scope of work, assess alternative solutions, develop the design, produce construction documents, and confirm implementation of the design during construction (Watermeyer 2012). Based on Yu, Ann; Shen (2013) research this phase of the project creates the foundation for a successful relationship between the client and the construction industry. Furthermore, innovation at the design stages is considered as critical source of creation and greatly influence competitiveness of the construction package proposals (Salter and Gann, 2003).

Both the client and the consultants work together in specifying the scope of the project before inviting construction contractors (Morledge et al. 2006). It very critical that they insure the design is well developed as rectifying design errors during the course of construction affect the project progress and require great attention from the client team (Love et al. 2013) . The relationship between parties in the separated procurement system is illustrated in figure 1.

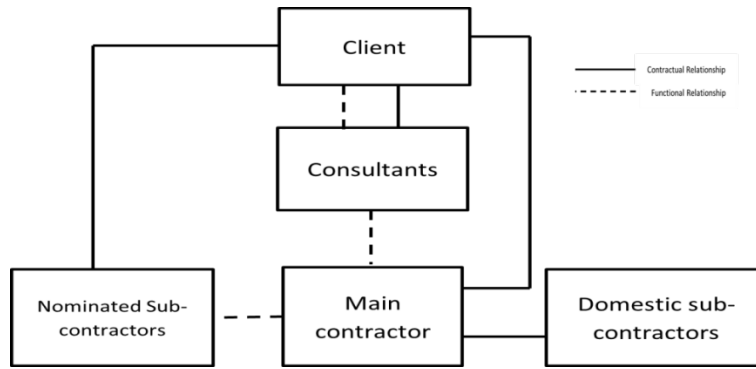


Figure 2: Relationship between parties in separated procurement system

2.2 Integrated procurement system

Integrated procurement system combines both of the project design and construction in one package. According to Masterman (2002) and Tookey et al. (2001), the responsibility of these two basic elements lies solely with the contractor. Therefore, selecting appropriate contractor by the client has significant impact on the project performance (El-abbasy et al. 2013). Design and build, management oriented, and Public Private Partnership are the most common form of this system, explained in the following sections.

Design and Build

Following the client decision to adopt the design and build route the procurement process consists mainly: identification of client’s requirements, obtaining tenders, tenders evaluation, and project implementation (Masterman 2002). It is very critical that the client provides the tenderers with sufficient and comprehensive information its requirements to achieve clarity and avoid misunderstanding (Masterman 2002). When working toward professional design, the client normally appoints a design consultant to prepare concept design , and compile the design and construction tender document of the project (Walker & Rowlinson 2008). The prospective contractor mainly depends on the information provided in the tender document to estimate the project cost and developing the project detail design. Following the contract award the contractor takes the key role in both the design and construction (Walker & Rowlinson 2008). Figure 3 illustrates the relationship between parties in the design and Build procurement system.

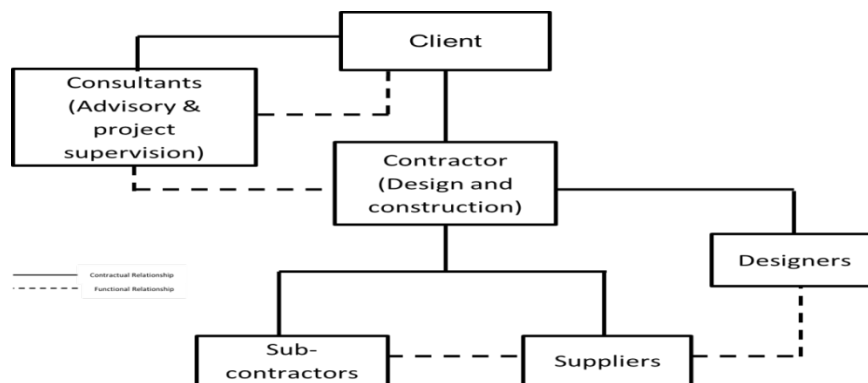


Figure 3: Relationship between parties in design and build procurement

Clients normally adopt Design and build procurement route to expedite the project execution especially at the pre-contract stage. Furthermore, the client has many options to expedite the process at this stage, for example tendering the project by providing the construction tenderers the requirements and performance level without design documents (Kumaraswamy et al., 2000; Masterman, 2002).

Management Oriented Procurement

Management oriented procurement system is distinguished by elevating the contractor to the early stages of the project to provide advisory and management services under the client directions. These procurement systems include management contracting, construction management and design and manage explained in the following sections (Masterman, 2002).

Management Contracting

Management contracting involves the client selecting a contractor at the early stage of the project based on brief description, time scale and estimated cost of the of the project (Masterman 2002). Client agreement with the management contracting party may include providing services during the design phase of the project and construction phase. The management contracting agreement could be only for design stage and the contractor is paid the agreed fees, or continuous with construction phase and thus the management contractor becomes liable for completing the project on the agreed date (Masterman, 2002). However, all construction work should be carried out by sub-contracting the construction packages to trade sub-contractors that are not related to the management contractor, thus avoiding conflict of interest between the client and the managing contractor. Furthermore, all trade sub-contractors are jointly evaluated and selected by the client, consultants and the management contractor. It is worth noting that the management contractor bear the full responsibility if he appoints the work packages sub-contracts directly (Gan, 2011).

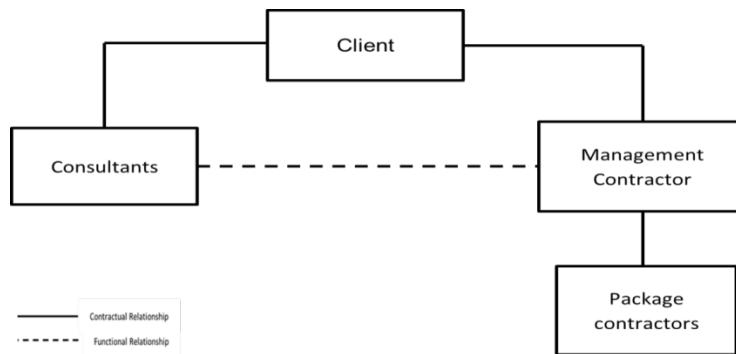


Figure 4: The client relationship with other parties in management contracting

Construction Management

Construction management procurement system is generally similar to management contracting except that the trade contractors are appointed by the client directly, so the construction management contractor does not enters into any contractual relationship with these contractors. Accordingly, the client got involved with multidisciplinary contractors who impose additional management and administration activities. Splitting the project work into small packages increase competition and the project become more

manageable (Masterman 2002). Figure 5 shows the project network and the relationship between parties in the case of construction management procurement system.

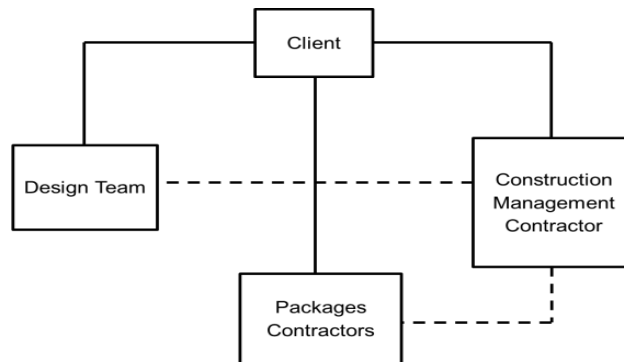


Figure 5: The client relationship with other parties in construction management

Design and Manage

In Design and manage procurement, the client appoint one organisation for both design and construction, where the client contact is only with this organisation. The client can appoint either a consultant or a contractor to provide the consultancy and management services, and the package contractors carry out the actual construction work. These package contractors' enter into direct contracts with the client in case a consultant is providing the design and management (Consultant-led), and as sub-contractors when a contractor (Contractor-led) is in the design and manage position (Masterman 2002).

2.3 Public Private Partnership (PPP) Procurement System

PPP is a procurement method used to develop facilities by transferring the financing, design, construction and operation to the private sector for a long term concession (Robinson & Scott 2009). This procurement system is mainly focusing in delivering the services rather than building asset and utilising the private finance rather than the public fund. In recent years, PPP has been selected for delivering infrastructure projects such as power generation, water supply, wastewater treatment, hospitals and schools. The contract in PPP is mostly based on performance level where the private investor is paid for the service delivered with limited risk on the public sector (Grimsey & Lewis 2005).

There are more than one form of contractual relationship between the client and the private sector, for example: Build Own and Operate (BOO) and Build Own Operate and Transfer (BOOT). In both examples the client or the end users pay the private sector service charges periodically to cover the cost of procuring and operating the facilities. With the BOOT procurement option the facilities are transferred to the client by the end of the concession period and in the case of BOO option the private sector is required to remove the facilities by the end of the concession period and keep the site in an acceptable condition (Walker & Rowlinson 2008). The contractual duration (Concession period) normally range between 20 to 30 years, however, the client may specify concession beyond this range. Figure 6 illustrates the relationship between parties in the PPP procurement system.

Based on Akintoye et al. (2003) and Robinson & Scott (2009) study; many public clients are on the learning curve and should acquire sufficient capabilities to achieve value for money. Furthermore, all

stakeholders believe that PPP could be further improved by better understanding of risk allocation, standardisation and skills development (Akintoye et al. 2003; Robinson & Scott 2009).

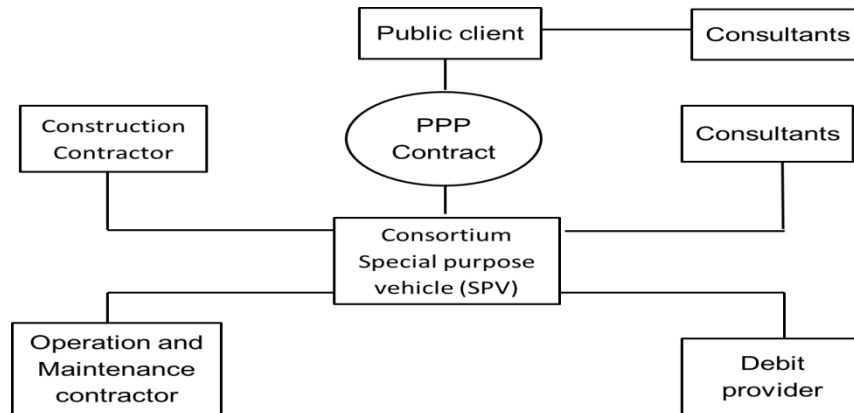


Figure 6: The relationship between parties in the PPP procurement system

3. Research Method

The research was conducted through several phases including: literature review, data collection, data analysis, findings, discussion and conclusion. In the literature review, a wide range of sources relevant to the procurement systems and the client role were obtained mainly from journal, proceedings and books published during the period between 2000 and 2013. A comprehensive list of the procurement activities was extracted mainly from BSi (2011), RIBA work plan (RIBA 2013), Project Procurement lifecycle the integrated process (OGC 2013) and ECI client best practice guide (2013). Then the abstracts of the relevant papers were read through to filter the most related sources. A total of 250 journal’s papers were found to be relevant to the role of the client in the construction procurement. Subsequently, random sample of 80 papers was selected and the review focused on these papers as the source for establishing the primary roles of the client in the procurements system. The research emphasised on the importance of client role in attaining effective construction procurement. The client role in each of the selected sources was tabulated, and the number of sources presenting the same role of the client was added for each of the procurement activities. The higher the number of sources the more important a particular role has within the client organisation. Therefore, the roles were then ranked in descending order, based on the number of sources. The classification of the roles and analysis of the ranking suggest two types of capabilities which enable the clients to exercise their roles effectively. They are named, primary and a secondary capabilities. The finding highlights some of the critical roles that provide the client’s organisation with the minimum capabilities required for different procurement systems.

4. Finding and Discussion

The review of the role of the client and the procurement systems show that most of the published sources studies between 2000 and 2013 were not specific to any procurement arrangement, with the exception of some studies directed toward Public Private Partnership. The finding of selected resources review and the ranking strategy applied in this paper presents some of the critical roles where client is expected to perform throughout the procurement life cycle. As can be seen in table 1 the review identified 18 general roles within the procurement life cycle, 12 roles of the client were stressed in between 3 to 11 sources.

Therefore, given adequate attention these 12 roles establish a good base for the development of the client organisation capabilities.

Table 1: A literature synthesis of client role in construction procurement

No.	Roles of the client		Critical tasks within the client role		
	Role description	Aggregate number of sources	Task Description	Aggregate number of sources	
				General	PPP
1	procurement strategy	11	Procurement route selection	6	
			Bases of selected procurement route	5	
			Basis of procurement packages	3	
2	project Initiation	10	Identify need of consultancy services	7	4
			Set out objectives and outcome	6	
			Review feedback from previous projects	3	5
			Value Management		
3	procurement method	9	Identify source of funding	5	
			Contractor selection method	8	
			Consultants selection method	5	
			Pricing basis and payment options	5	
			Procurement management	3	
4	Project Brief	8	All are two or less sources		
5	Business case	7	Agreeing the project objective with the stakeholders	3	
6	Risk management	7	Risk allocation		4
			Monitoring and reporting risk		3
7	Tendering and award	6	Award criteria	4	
			Weightage for award criteria	3	
			Set /price ratio	3	
			Set quality scoring	3	
			Set price scoring		
8	Performance Management	6	Performance assessment		3
9	Change control	4	Requirement management	7	3
10	Prequalification	3	All are two or less sources		
11	cost management	2			
12	operation and maintenance	2			
13	program development	1			
14	Design	0	Design management	3	
15	Construction management	0	All are two or less sources		
16	Completion	0			
17	Evaluation of post occupancy	0			
18	Information coordination	0			

Based the ranking presented in table 1, nine roles have been ranked above the average number of sources (76/18) that attributed these roles to the client organisation. Each of these roles was addressed in between 4 to 11 sources during the period from 2000 and 2013. Further analysis of the roles show that six out of

them are clearly related to the pre-contract stage, and the other three are a continue management and assessment roles which could run throughout the procurement life cycle. These findings highlights the client organisation that a good performance in construction procurement can be achieved by combining the effective participation at the pre-contact stages of the procurement and continuous and assessment and management of the procurement activities. The findings also stress some key tasks within the primary roles of the client, which direct the client organisation with the need of specialized capabilities in order fulfil its roles in an effective and professional working way.

The client was addressed to much less extent in the roles ranked between 10 and 18, these nine roles comes at different stage of the procurement life cycle for example prequalification is at the pre-award stage, where construction and operation at the post contract phase. Also, most of the nine roles highly depend on the selected procurement method and the level of integration between design, construction and operation or even funding. Thus, the client organisation may outsource these roles other parties how has better capabilities for the acquisition of the client scheme.

Accordingly, the roles of the client are classified in to two types: primary roles and secondary roles. The primary roles are the required by all clients irrespective of the selected procurement systems. This discussion shows that the client organisation has nine primary roles:

- a. Development of the procurement strategy: This role several activities such as establishing the basis of selecting any procurement route, confirm the project objectives, undertake market engagement, identify responsibilities, and identify constrains.
- b. Procurement initiation: this role covers the earliest stage of the procurement life cycle and expected to cove many activities, for example: the main project objectives, outcomes, consultancy needs, review previous projects feedback, and identify roles and responsibilities within the client organisations.
- c. The development of the project brief: provide comprehensive information about the project which may include but not limited to scope, objectives, outcomes, quality expectations, deliverables, constrains, time frame, and project special features.
- d. Selection of the procurement method: the finding table provides some of the key tasks within this role and these tasks establish the minimum capabilities for the client organisation.
- e. Development Business case: this role reconfirms the tasks covered at the initiation phase after close coordination with the project stakeholders and evaluation of options for meeting the established objectives and outcomes.
- f. Risk management: establishing clear understating of risks associated with project delivery and risk allocation are two crucial tasks among other within this role.
- g. Tendering and award is one of very sensitive role especially the tender evaluation strategy and award criteria.
- h. Performance management: this continuous process within the client organisation, and the project, the consultants and the contractor performance. The effectiveness performance management depends on the set performance strategy and the objectives of the client.
- i. Change control: ensuring the procurement control is a challenging role with multidiscipline tasks technical, financial, legal, health, safety, and environment. Client effective contribution in requirement management has been frequently addressed in the reviewed sources which need greater attention from the client organisation.

After highlighting some of the tasks under the client primary roles, it worth noting that the secondary roles may vary based on the selected procurement strategy. Therefore, outsourcing all or some of these sources could be more viable option for the client organisation.

5. Conclusion

The finding of this paper shows that the primary roles of the client organisation are irrelevant of the procurement systems. The review concluded that the client has nine primary roles, namely development of the procurement strategy, project initiation, selection of the procurement method, development of the project brief, development of business case, risk management, performance management and tendering and award and change control. Additionally, there are nine secondary roles which depend on the procurement strategy. It is postulated that these secondary roles may be outsourced to other parties without significant impact on the performance of procurement. The relationship between (primary and secondary) client roles and performance is the subject of further investigation.

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