

Impediments to the Development of Design and Build Procurement System in Sri Lanka

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Abstract

Design and build has become a popular mode of procuring construction work. It is now, regarded by majority of clients because it offers greater confidence to clients. Even most of the researchers had found that the design and build procurement method is better than the traditional method in most of the areas, in general it does not develop as dominant or highly practicing procurement method in most of the countries except France, Greece and also Norway and Mexico in private sector. In Sri Lanka, design and build has not extended as it is expected. Therefore, it is worthwhile to find out the reasons behind the drawbacks of design and build procurement system development. Thus this research is intended to identify the most significant impediments to the development of design and build procurement method in Sri Lanka.

A two round questionnaire survey facilitated to identify the significant impediments to the development of design and build procurement system in Sri Lanka and few unstructured interviews with most experienced professionals in the area were carried out in order to study and understand the context. Twenty significant impediments were identified and ranked according to the negative impact they create on the development of design and build procurement system. It is found that very less contribution given by the government to promote design and build is the first most significant impediment. Lack of clients' knowledge related to alternative procurement systems, less contribution to the development given by research and development institutes, unfamiliar of contractors' professionals with the design and build procurement process, clients' lack of experience with design and build procurement method, less contribution to the development given by professional institutes, and reflection of consultants' own interest in procurement selection are found as other six uppermost significant impediments.

Keywords: Design and build, Procurement method, Impediments, Sri Lanka

1. Introduction

Design and build (D&B) is becoming popular due to its advantages providing over the traditional procurement system. The D&B procurement route has witnessed significant growth in many countries over the world and considered as dominant procurement system too.

However, some researches shown than in Sri Lanka the traditional procurement system is dominating the procurement market over the years and D&B procurement system use as next alternative option among alternative procurement systems but, less in practice. There this paper presents a study undertaken to identify the impediments to the development of D&B procurement system in Sri Lankan based. The significant impediments found out through the surveys and unstructured interviews are discussed and explained in the appropriate sections.

2. Background

2.1 D&B procurement system

Design and Build procurement system is defined as, ‘A construction procurement method where the contractor offers to undertake the entire design and construction of a project’ by Cox and Townsend 1998 (cited in [1]). According to Moore and Dainty [2], D&B emerged as a procurement system to overcome the drawbacks of the separated system by offering greater confidence to clients seeking to avoid delays, exposure to costly claims, possible litigations and to improving project performance. D&B is now regarded by majority of clients than the for the traditional system, which providing the optimum route to obtain value for money and it is easy for the clients to enter in to a single contract rather than many where, the conflicts among parties are less. Its popularity arises from its perceived ability to bring design and construction processes closer together culturally, and associated improvements in cost and time certainty. Further, the system has also been advocated as facilitating a seamless procurement process, improving team relationships and producing a more efficiently delivered product. It offers a potential route for the implementation of new concepts such as: fair and equitable relationships, continuous performance improvement and changes in management and culture. The system reduces time to a minimum by eliminating traditional tendering procedure and produces more advantages to the clients and contractors when comparing to the traditional procurement system.

2.2 Trends in procurement systems

There was a time, when traditional system was the only option on the table to clients. An architect designs a building from beginning to its end and then contractors looked over the drawings and bid on the project. But the states now have changed and there are different project delivering methods to fulfil the client’s need according to project requirements.

According to the research conducted by the Royal Institute of Chartered Surveyors (RICS) Construction Faculty [3] over the years for United Kingdom (UK) construction industry, D&B is a single most prevalent alternative procurement method since year 1995. Until such time the Bills of Quantities dominated the industry. This was the time of major shifts in procurement strategies come up. This survey reinforces the dominance of D&B as a procurement strategy. D&B has remained steady at just over 40% of total workload value. Not only in UK construction industry but also in many other countries such as China, Denmark, Great Britain, Japan and United States of America (USA) D&B procurement method shows an increasing trend. In Private sector countries like France, Thailand, Norway and Mexico uses D&B system

more than 50%. Public sector too in countries like Greece and France uses the D&B as the procurement system [4].

According to the research conducted by Rameezdeen and Ratnasabapathy [5], the Measure and Pay method dominates the Sri Lankan construction industry, but decrease in certain periods paving way for other systems. Majority of public works in Sri Lanka found to be procured using these methods by considering accountability and transparency. D&B has recorded a usage rate of 20-35% during the year 1977 to 2003. The management contracts, lump sum, prime cost contracts procured only few projects during the study period. Table 2 indicates the survey result of trend procurement systems in Sri Lanka [5].

Table 2: Trend in methods of procurement in Sri Lanka (by value of contract)

% of Use (average)	1977	1982	1987	1992	1997	2001
Procurement System	-81	-86	-91	-96	-00	-03
Measure and Pay	55	50	58	50	64	72
Lump Sum	12	10	8	7	10	5
Prime Cost	10	8	5	4	3	1
Design and Build	22	31	28	35	21	22
Management Contracting	1	1	1	1	1	0
Joint Venture	0	0	0	3	1	0
Total	100	100	100	100	100	100

In Sri Lankan context the growth pattern of D&B was positive up to year 1996 and then it began to decline up to year 2000, but there after no significant changes shown in its growth. The growth of D&B is not up to the expected level in Sri Lanka when comparing with the countries mentioned earlier. The traditional procurement system remains widely procuring method and it's seems to be strong. Therefore, it is essential to explore why the D&B procurement is not popular in the Sri Lankan context and identify the barriers preventing the popularity, in order to develop the innovative procurement system in Sri Lanka.

3. Methodology

This research is designed as a survey study to identify the most significant impediments to the development of D&B procurement system in Sri Lanka. Therefore, the data collection is done based on two round structured questionnaire survey. The first round of the survey was used to identify the presence of the impediments in the local context by using a sample of ninety professionals. The next round used to rank the impediments according to their negative impact to the development of D&B. Screening process, considering the respondent who are mostly complying with the first round results reduces the second round sample size up to thirty in number. The sample for both survey rounds consisted similar number of clients, consultants and

contractors' professionals with different professional disciplines such as: Architects, Engineers and Quantity Surveyors. Some unstructured personal interviews were setup for the purpose of study the local context parallel to the first round questionnaire survey. Based on the literature survey, questionnaires were prepared and distributed to identify the current impediments that are emerged in the local context. In the basis of first round results the second round aimed to identify the significant impediments and Relative Important Index (RII) was used to analyse the data in the second round.

4. Impediments to the development of D&B procurement system in Sri Lanka

The impediments can be created externally or internally to the development of design and build procurement system. The factors that beyond the control of the stakeholders of the construction industry were identified as external factors and factors, which can be controlled by the stakeholders, were taken as internal factor. According to Rolwinson [6], the external environment factors that affect the construction industry as well as the development and use of procurement systems, which comprise political, economical, technological, financial and social aspects. The internal factors contain: issue imposed to the development of D&B procurement by client, consultant, contractor, government, statutory and regulatory bodies, research and development instituted (R&D) and professional institutes.

Twenty most significant impediments were identified both internally and externally, that effecting the development of D&B procurement system in Sri Lanka. The factors were discussed under appropriately categorized sections and explained. Table 3 shows the identified significant impediments in the rank order.

Table 3: Twenty significant impediments identified through the survey

Rank	Impediments
1	Government contribution in promoting D&B in Sri Lanka is very less
2	Clients' lack of knowledge regarding alternative procurement systems
3	Less contribution to the development of D&B procurement system by Research and development institutes in Sri Lanka
4	Contractors' professionals are unfamiliarity with D&B procurement system
5	Clients' lack of experience with D&B projects
6	Less contribution to the development of D&B procurement system by Professional institutes in Sri Lanka
7	Reflection of consultants' own interest in procurement selection
8	Government preferences for D&B only by only considering time factor
9	Poor relationships create by client with the consultants

Rank	Impediments
10	Barriers to enter in to D&B market by the construction contractors in terms of: not familiar with D&B projects earlier and incapability of contractors
11	Negative attitudes among consultants' professionals toward D&B procurement system
12	Inadequate in-house design team in contractors' organizations to compete in the market
13	Poor project management practices by the D&B contractors
14	Contractors' professionals inflexible to accept the changes when involving in D&B process
15	Effect of political environment in procurement selection
16	Barriers to enter in to D&B market by the construction contractors in term of political environment
17a	Inadequate cover by the 'Standard Conditions of Contract'
17b	Very less contribution is given by the Ministry of Finance to the development of D&B procurement system as a regulatory body of Sri Lanka
19	D&B contractors' profit making interest rather than thinking of client's requirements
20	Less market strategies used by D&B contractors in order to promote their

4.1 Clients related factors

The study point out that the lack of clients' knowledge related to alternative procurement systems (ranked-2) act as a major barrier to the development of D&B in Sri Lanka. It is difficult for the clients to gain knowledge regarding new procurement system, since most of the construction clients are laymen and any institutes or contractors do not conduct awareness programmes for clients in order to educate them regarding the innovative procurement systems. Therefore, the clients do not intend to use alternative procurement systems other than the traditional system.

Clients' lack of experience with D&B projects (ranked-5) widely effects the selection of D&B system in their projects. On the other hand it consequently reduces the probability of using D&B for most of the projects and this factor give a negative impact to the growth of D&B procurement method. Most of the clients fear to take an additional risk by selecting a procurement system, which is not familiar to them. Also there are lack of examples in the industry to show the success of such system due to only few projects are carried out using D&B procurement system in the industry.

Other than the clients' lack of knowledge regarding alternative procurement systems and lack of experience with D&B projects; maintain poor relationships with consultants by clients (ranked-9) act as impediment to the development of D&B. Clients are overemphasis on fee rather than services, ultimately they get poor consultants services for their projects by consider low cost. Ultimately, they provide insufficient project brief, provide inadequate time to prepare proposals to contractor, often change their scope of work, create lot of difficulties in the construction stage especially in quality control and creates conflict with contractors. Therefore, this gives a negative effect to the development of D&B.

4.2 Contractors related factors

The unfamiliarity of contractors' professionals with D&B process is the forth major significant impediment in ranked order, which effect the development of D&B in Sri Lanka. The reason could be Sri Lankan professionals are generally practice the traditional procurement system due to the domination of the systems in the market. It is found that the public contracting organizations are widely use the Measure and Pay rewarding method for D&B system even though Lump Sum method is conventionally used for D&B system. In some instances they bid for Lump Sum method and later change to Measure and Pay method due to the difficulties faced after the commencement of the project. This evidences the unfamiliarity of Sri Lankan public contracting organizations with the system. In addition, most of the private contracting organizations have lack of experience with D&B projects due to the ascendancy of the traditional procurement system in the market. Therefore, most of the contractors' professionals are not willing to work for D&B projects and this act as a barrier to the development of D&B in Sri Lanka.

Also, there are barriers to the construction contractors to enter in to the D&B service market due to their incapability and unfamiliar with D&B projects earlier. Inadequate in-house design team in contractors' organizations act as a barrier to D&B contractors to, compete in the market. However, the responses from contractors for this factor are little varied from consultants and clients. Most of the contractors in Sri Lanka go for joint venture with design teams for D&B projects and the contractors feel that it is easy and better to outsource the design team. In addition, unstable demand for D&B type projects discourages the contractors to establish in-house design teams. This might be the reason for absents of pure D&B organizations which only undertake projects under D&B system in Sri Lanka. But, the consultants and clients experienced that joint ventures bring additional cost factor to the project, more difficulties and conflicts after the project completion. The improper project management practice by the D&B contractors in Sri Lanka ranked 13th in order. It is obvious that this factor prevent the consultants and clients to select D&B as project procurement. Also, the contractors' professionals are reluctant to accept the changes when involving in D&B process due to strong uncertainty avoidance and rigid culture of the Sri Lankan construction professionals also found as another impediment to the development of D&B in Sri Lanka.

Other than the above mentioned factors, contractors' profit making interest rather than thinking of clients' requirements (ranked-19) and less market strategy used by the contractors (ranked-

19) identified as a significant impediments. The profit making interest leads to reduction in quality of the project and the clients are not in a possession to derive the benefits of this procurement method without sacrificing quality. Marketing or sales development long ignored by many contractors who depend on word-of-mouth in a defined geographical marketing arena, also the market strategy used by D&B contractors are very less compare to countries which use D&B widely and this factor act as a barrier to increase the D&B projects in the context.

4.3 Consultants related factors

Reflection of consultants' own interest in procurement selection (ranked-7) has given a considerable effect to the development of D&B. The reason for this could be that the consultants do not use systematic procurement selection criteria for project procurement selection. Therefore, the selection could always be bias rather than a logical approach. Thus, consultants select the traditional procurement system as project procurement, which they are well familiar in most of the cases. The selections are made without taking additional risk by selecting an unfamiliar procurement system. Ultimately, this leads to reduction in probability of use D&B system for appropriate project scenarios.

It is revealed through the study that, there are negative attitudes among consultants' professionals toward D&B procurement system in Sri Lanka. This is due to the image among consultants' professionals regarding D&B such as loss of their traditional leading role, authority and job satisfaction. Further the consultants' professionals are reluctant to change from the tradition and experience new challenging role in the innovative procurement system due to their rigid culture. Ultimately this factor effects the D&B procurement selection in project procurement and reduces the usage of D&B.

4.4 Government and political environment

It is found that the very less government contribution in developing D&B is the first most significant impediment to the development of D&B procurement system in Sri Lanka. The government started to procure more projects using D&B system from year 2001, after publishing 'Standard Bidding Document' for D&B contracts. But bidding for most of those D&B public projects are not open to the private sector contractors. Generally government goes for negotiated based D&B contracts with public contracting organizations. This discourages the use of D&B in private sector. If the government open the tenders to the private sector, the contractors may be encouraged to develop further their D&B knowledge in order to stay competitive to bid for future projects. Once they are familiarized with D&B, the level of adoption will be increased. As a consequence, the use of D&B is significantly promoted across a broad spectrum of the construction industry, which the government fails to do so. Therefore, initiation of the D&B procurement system in private sector by the government as a major client in the construction industry is the lagging contribution within the context in order to develop D&B procurement system.

Also, it is found that the government goes for D&B procurement system only to gain advantages from the time factor that the system produces, but excluding other advantages it provide and without any systematic review. Therefore this factor affects the use of D&B procurement system for most of the public projects. In addition the political environment interims of policies and directions act as a barrier to the contractors to enter in to D&B market and in procurement selection. If the government's directions are toward increasing D&B projects, the market entries and D&B procurement selection will ultimately increase in the context.

4.5 Contribution given by research and development (R&D) institutes in Sri Lanka

In the Sri Lankan context the R&D practices are less in the industries when compare to the developed countries. It is around 0.15% in the total GDP. The R&D institutes are imperative to construction industry, since they bring new knowledge and develop new cultures in the construction industry. The contribution of R&D to develop alternative procurement systems makes rapid impact to the industry and pilot to change the trend of procurement systems, which has not happened in the Sri Lankan context. Therefore, poor contribution by R&D institutes (ranked-3) acts as a significant barrier to the development of D&B in the context.

4.6 Contribution given by the professional institutes in Sri Lanka

Less amount of contribution given by the professional institutes in Sri Lanka (ranked-6) indicated as sixth major impediment to the development of D&B. Few professional institutes do not prefer the D&B system, some of them are against the development for the purpose of protecting the small and medium construction contractors who can not involve in D&B projects. This factor gives an unconstructive effect to the development of D&B.

4.7 Standard conditions of contract

The standard conditions of contract used for D&B contracts are use with considerable amendments due to inadequate cover by such documents in the Sri Lankan construction industry and it creates many problems during the construction process. It is found that the 'standard conditions of contract' published by the regulatory body of the construction industry with in the country: Institute of Construction Training and Development (ICTAD) for D&B is the widely used document for D&B projects in Sri Lanka.

5. Conclusions

In Sri Lankan context, the traditional procurement system is widely used for both private and public projects up to now, since the government and regulatory bodies promoting the traditional procurement method and widely use in public project procurement. In addition the clients are not knowledgeable regarding alternative procurement systems and the construction professionals are reluctant to change themselves from the system that they are well familiar.

However, the research and development institutes, and professional institutes also do not contributing to the development of alternative procurement systems.

The Design and Build (D&B) system has recorded a usage rate of 20-35% up to year 2003 in Sri Lanka and the growth of the D&B system is not up to the expected level comparing to some other countries like UK, France, Greece and etc. Therefore, this research was intended to identify the significant impediments to the development of D&B procurement method.

It is found that in Sri Lankan context: very less contribution is given by the government to promoting D&B, clients' lack of knowledge regarding alternative procurement systems, less contribution to the development of D&B by Sri Lankan Research and Development Institutes, contractors' professionals unfamiliarity with the D&B process, clients' lack of experience with D&B projects, less contribution to the development of D&B procurement system by Sri Lankan Professional Institutes and reflection of consultants' own interest in procurement selection are the impediments to the development of D&B respectively in the significant order.

The government acts as the single largest client of the construction industry and is responsible for all the public construction needs. Failing in initiation of D&B procurement as one of the major procurement system by the government and their policies in procuring D&B such as; offering the job to public contracting organizations in negotiated base and no systematic review in procurement selection are some major facts which create such significant impediment. Lack of clients' knowledge related to alternative procurement methods creates a major problem in developing D&B procurement method and it effects the selection of a suitable procurement method for projects. Since, the contribution given by research and development institutes and professional institutes are very less, it is difficult to develop an alternative procurement method as a dominant procurement method within the context, because these institutes play the central role in introducing innovations to the industry. Unfamiliarity of contractors' professionals with D&B process creates a barrier to the development of D&B procurement method. Since, professionals do not prepare to involve in the new process and face challenges due to the rigid culture and strong uncertainty avoidance it is difficult to develop an alternative procurement method as a dominant procurement system in the context.

Neglecting the procurement selection criteria in project procurement selection by the consultants (ranked..) is an issue in the Sri Lankan context. This creates a better opportunity to the consultants to select the procurement system based on their own interest. Since, the industry is well familiar with the traditional procurement system there is a higher probability to select the traditional procurement system as project procurement. Therefore, consultants' own interest in procurement selection negatively effects the development of D&B procurement system. Ultimately, all the above factors highly restrict the development of D&B as a dominant procurement system in Sri Lanka.

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