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INVESTIGATION OF FACTORS THAT INFLUENCE THE SELECTION OF PROCUREMENT SYSTEMS OF THE SOUTH AFRICAN CONSTRUCTION INDUSTRY

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ABSTRACT

Purpose of this paper – Procurement systems are vital in ensuring a successful implementation of a construction projects, precisely to all phases of the project. Therefore, this paper aims to investigate in a systematic manner the factors that influence the selection of procurement system in the South African construction industry.

Research Methodology – A vast body of theory and literature review on procurement systems was conducted. Literature reviewed included a sample of case studies of completed Building and Civil Engineering projects within South Africa, questionnaire surveys using Delphi method will be used to identify the factors influencing the selection of procurement systems as well as the level of influence each factor as identified. Finally, data will be analysed using both qualitative and quantitative techniques.

Findings – The findings indicates factors that influence the selection of procurement systems are closely linked to the problem areas of all phases of the project as identified in this paper. These factors are categorically classified into internal and external factors. Factors from the internal environment were further classified into client characteristics and Project characteristics, client characteristics include factors such as client's level of knowledge and control, political and social consideration, familiarity of procurement systems, competition, funding arrangement, government projects and risk allocation whereas project characteristics include factors such as size and technical complexity of the project, influence of the project life cycle, natural causes, expedited project delivery, time, quality and price certainty. Factors form external environment include market competition, information technology, regulatory environment and globalization.

Research implications – The research investigates the factors that contribute in influencing the decisions to the selection of procurement systems in the construction industry. In addition, traditional and non-traditional procurement systems are reviewed in order to identify the problem areas of each system.

Research limitations – Given that the findings of this paper were drawn extensively from the theory and literature reviewed, therefore the findings of the questionnaire survey are not included due to some of the phases or other rounds of the empirical survey still underway, but however the result will be included at the final report of this paper.

Value – Considering the vital role of procurement systems on implementation of construction projects, it is of great significant that this study will assist in providing a pro-active approach to clients, professionals, researchers and all other stakeholders of the Built Environment in selecting suitable procurement systems for their planned construction projects, it also anticipated that the study will broaden the knowledge base on other new aspects of integrated procurement systems that embrace financing, owning, operating and managing the constructed facilities.

Keywords – Procurement systems, traditional, non-traditional, construction projects, South Africa, internal and external factors.

INTRODUCTION

The term procurement system is variously known to many practitioners and researchers of the construction industry by different terms, these include terms such as project approach, procurement methods, procurement delivery methods or project delivery systems etc. below are the two definitions that best define what procurement system is. An organizational structure adopted by the client for the implementation and at times eventual operation of a project (Masterman, 2002) or a key means through which the clients creates the pre-conditions for the successful achievement of project specific objectives (Rameezdeen and Ratnasabapathy, 2002) .

Procurement systems govern the delivery processes of a construction projects in many ways than one, and are key factors in determining the success or failure of the project. Procurement systems have received a well deserved attention in countries such as Australia, United Kingdom, United States of America, Japan, New Zealand etc. but this has never been the case locally as well as in many African countries. Although there is a plethora of different procurement systems that are used to deliver different construction projects, an extensive literature review on procurement systems indicates that there is currently no systematic and no realistic approach applied or used to select the appropriate procurement system, however, the literature reviewed further highlighted that factors that influence the selection of procurement systems are closely linked to the problem areas of all phases of the project, but this is further exacerbated by poor contractual relationship between the parties to the contract.

OBJECTIVES

The aim of this paper is to investigate in a systematic manner the factors that influence the selection of procurement systems of the South African construction industry. This will also assist the study to discover the following objectives:

To investigate factors influencing the selection of procurement systems within the South African construction industry

To investigate procurement systems that are used most within the South African construction industry.

To identify the problem areas associated with each factor of procurement system

To identify strategies in order to improve the procurement system selection

PROBLEM STATEMENT

The main problem cut across to what Dorsey (1997) termed or described as the "eternal triangle" of construction, this include the client, consultants and the contractor. The main problem is therefore a lack of consistency or inconsistent selection of procurement systems exacerbated by irrational decisions.

Sub-problems

The following sub-problems were identified:

Client's inability to handle or to deal with the concept phase due to lack the client's in-house relevant experienced management resources at the planning stage.

Poor pre- project decisions prior to commencement of the project, even before the selection of or appointment of consultants.

Unclear contractual relationship

RESEARCH METHODOLOGY

The vast body of theory and literature review focusing on South Africa and international literature was conducted for this study, this also included a review of about 6 South African case studies of completed projects that have used or implemented construction projects successfully using universal procurement systems. Findings will also be drawn from the utilization of Delphi method which is conducted into four rounds of opinions collection, round one of the Delphi method consisting of section A and section B has been completed, the purpose of section A is to obtain the factual biographical data profiles of the targeted respondents, also to ascertain the participant's level of knowledge about the procurement systems used in South Africa. The purpose of section B is to determine whether the factors as revealed from the literature review exist within the South African construction industry. For the purpose of this paper only theory and literature review have been considered as the empirical survey which is targeted to members of four professional councils of the built environment is still underway, questionnaire will be forwarded to the professional members of SACQSP, SACCPMP, SACAP and ECSA.

LITERATURE REVIEW ON PROCUREMENT SYSTEMS

Procurement system is a contemporary term which is most familiar to both the practitioners and researchers of the construction industry. Procurement systems are basically classified into:

Traditional procurement systems – This method is called “traditional” because it has been in existence and the only choice that was available for most clients of the construction industry for many years. With this method, the client enters into an agreement with the design consultant (An Architect or Engineer) to actually carry out the design work and prepare contract documents. Following the completion of this phase, the contractor is then appointed based upon the owner's criteria and the client enters into a contract with the successful contractor for the assembly of the project elements. In essence, the client is under two contractual obligations; the design professional and the contractor. In order for the client to obtain a constructed facility, tenders from this type of procurement systems are invited in one of the three methods:

Open tendering – which is a procedure that allows practically any contractor to submit a tender for the works, this procedure involves either the client or consultant placing a public advertisement giving a brief description of the work, normally the client will need a cash deposit when contract documents are required (Pilcher, 1992).

Selective tendering – it consist of the client drawing a short list of contractors that are known to have the appropriate qualifications to carry out the work satisfactorily. Those contractors who seek to be listed are then asked for further details concerning their technical competence, financial standing, resources at their disposal and relevant experience. The list of pre-qualifying contractors are invited to tender (Pilcher, 1992)

Negotiated tendering – This method is applied in several or different contexts, but the essence is that tenders are obtained by the client inviting a single contractor of his/her choice to submit prices for a particular project.

Non-traditional procurement systems – non-traditional is a generic term which is used to refer to all emerging or contemporary procurement systems of the construction industry other than the traditional procurement system. Over the past number of years, the construction industry has changed in a manner that it never done for the past fifty years, amongst others some of the changes were evidenced with the size and complexity of the construction projects, financial challenges, political and social consideration and information technology had led to the development of alternative procurement systems other than famous traditional one.

Although the development of non-traditional procurement systems, it must however be emphasised that there is not yet a specific method used to select the most appropriate procurement system. Masterman (2002) defines non-traditional procurement system as a diversified contemporary procurement system(s) that not only consider design and construction, but also consider financing, operating and facility management, below are the three different types of non-traditional procurement systems;

Integrated procurement system – Where one organization, usually but not exclusively the contractor, takes responsibility for the design and construction of the project, in theory at least, the client only deals with one organization.

Management-Oriented procurement system – Under Management-Oriented procurement system, the management of the project is carried out by an organization working with the designer and other consultants to produce the designs and manage the physical operations which are carried out by contractors. When using systems within this category, the client will need to have a greater involvement with the project than when employing any of the other methods described in the previous two categories.

Collaborative/discretionary procurement system – Under collaborative the client lays down a framework for the overall administration of the project within which he/she has the discretion to use the most appropriate of all the procurement systems contained within the other three categories. In collaborative procurement system Quantity Surveyors play an integral role by providing a wide range of services, which include contractual issues, it also offers Quantity Surveyors an opportunity to act as an independent advisor within the system (Cartlidge, 2002).

SOUTH AFRICAN PERSPECTIVES

According to the two studies conducted in two countries of the SADC region, one from South Africa by Rwelamila and Meyer (1996), and the other from Botswana by Rwelamila (1996). Both the studies revealed commonalties that both South Africa and Botswana have adopted a ready-made construction framework from United Kingdom and that about 80% of both contractors and consultants in Botswana are South African based. Although the precedent of procurement systems in South Africa is based on the British model, post 1994, the South African government and all other stakeholders of the construction industry through the Department of Public Works have initiated and co-ordinated the development of a comprehensive CIDB as part of its contribution to national for Reconstruction, Growth and Development typified in the white paper "Creating an Enabling Environment for Reconstruction, Growth and Development in the Construction Industry (DPW, 1999).

Construction procurement policy in South Africa

Procurement is defined as the process which creates, manages and fulfils construction contracts, and it is further described as a succession of logically related actions occurring or performed in a definite manner and which is culminated by methods (i.e. documented systematically), and procedures which are performed and shaped by policy of an organization (ISO/DIS 10845-1, 2008). Within the South African government context, policy is often translated into rules and regulations, policy also relates to

choices made in the use of generic procedures, methods and circumstances under which a certain procedure should be used (SANS 294). Therefore it can be deduced from the above-mentioned definitions that the combination result in a processes referred to as a procurement policy which is defined as a process which creates, manages contracts based on the choices made in the use of generic procedures, methods and circumstances adopted in terms of 76(4) (c) of the PFMA.

In the field of procurement systems, South Africa like many other developing countries uses the generic procedures and standard set of processes and methods for procurement systems that are fair, equitable, transparent, competitive and cost effective when pursuing implementation of construction projects within construction industry and this is regulated in all spheres of government including state-owned enterprises through various pieces of legislation or prescripts as listed below:

Act	Applicability	Purpose
Constitution of the Republic of South Africa (Act No 108 of 1996)	All organs of state	Provides procurement objectives and establishes government's policy for referencing
Public Finance Management Act (Act No 1 of 1999)	All organs of state, except in the local government	Establishes broad framework within which accounting officers/authorities must establish their procurement and provisioning system
Construction Industry Development Board (Act No 38 of 2000)	All organs of state involved in procurement relating to the construction industry	Establishes a means by which the board can promote and implement policies, programme and projects aimed at procurement documentation, practices and procedures within the framework of the procurement policy of government. Establishes a national registers of contractors and if required consultants and suppliers to manage public procurement risk.
Preferential procurement policy framework (Act No 5 2000)	All organs of state and state owned enterprises at discretion of minister	Establishes the manner in which preferential procurement policies are to be implemented
Broad-Based Black Economic Empowerment (Act No 53 of 2003)	Procurement provisions apply to all organs of state	Development of qualification criteria for issuing of licenses or concessions, the sale of state owned enterprises and for entering partnerships with private sector. Development and implementation of preferential policy.

Table 1: Prescripts regulating the South African construction procurement systems

Adapted from the Construction Procurement Best Practice Guideline #A2 (CIDB, 2007)

Procurement systems used in South Africa

South Africa being one of the developing countries, it therefore follows and guided by the framework for developing effective procurement systems in developing countries (The round table process, December 2000). It was on this declaration that an agreement was reached for developing countries to utilize common strategies, approaches and tools in order to strengthen the procurement systems capacities in developing countries and move towards greater reliance on national systems. With reference to SANS 294 as highlighted in the construction procurement processes, procedures and methods of the best practice guidelines # A1 (CIDB, September 2005), it provides guidance classified into three categories as shown below I table 5:

Category	Procurement procedure	Actions
Negotiated Procedure	Negotiated Procedure	A tender offer is solicited from a single tenderer
Competitive Selection Procedure	Nominated Procedure	Tenders that satisfy prescribed criteria are entered into an electronic database. Tenders are invited to submit tender offers based on search criteria and if their position is relevant on database. Tenders are repositioned on the database upon appointment or upon submission of tender offer.
	Open procedure	Tenderers may submit tender offers in response to an advertisement
	Proposal Procedure (Two envelope system)	Tenders submit technical and financial proposal in two envelopes, financial proposal is only opened and considered if it attain minimum threshold score
	Proposal Procedure (Two stage system)	Tender offers are invited from those that submitted acceptable proposals based on revised procurement documents. Alternatively, a contract is negotiated with the tenderer scoring the highest number of points.
	Qualified Procedure	A call for expressions of interest is advertised, and there after only those who have expressed interest, satisfy objective criteria and is selected to submit tender offers, is invited to do so.
	Quotation Procedure	Tender offers are solicited from not less than three tenderers in any manner the organization chooses, subject to the procedures being fair, equitable, transparent, competitive and cost effective
	Shopping Procedure	Obtain three written or verbal and confirm the lowest offer once confirmed
Competitive Negotiation Procedure	Restricted Competitive Negotiations	Tenders who have expressed interest, satisfy objective criteria and who are selected to submit tender offers , are invited and the client evaluates offers and determine who may enter into competitive negotiations
	Open Competitive Negotiations	The employer evaluates the offers and determines who may enter into competitive negotiations

Table 2: Standard procurement procedures in South Africa, Source: ISO/DIS 10845 – 1 (2008)

Case studies of construction projects successful implemented in South Africa using different categorization of non-traditional procurement systems.

Despite South Africa being a developmental state, construction wise, South Africa has the potential to undertake both public and private sector construction projects using the categorization of universal procurement systems. This is evidenced by the empirical survey conducted by Gobler and Pretorius (1999), this study has established that about 30% of the respondents agreed that traditional procurement system has been the most used and favoured form of procurement system for housing delivery projects in South Africa. The pair further indicated on their report that 62% of both Building and Civil Engineering projects were delivered using integrated type of procurement systems (Design and Build) and 8% of both Building and Civil Engineering projects were implemented using other forms of non-traditional procurement systems with Construction Management being the least form of procurement systems used.

Another empirical survey conducted by Mbanjwa and Basson (2003) indicates in a scale of 1 to 5, with 1 indicating no knowledge and 5 indicating excellent knowledge. Traditional procurement system was rated the most favoured form of procurement systems, 2nd being the construction management, 3rd being management contracting, 4th being design and build (turnkey) and design and manage including (Build, Operate and Transfer) being the 5th. However, the survey findings of Gobler and Pretorius (1999), Chege (April, 2001) and Mbanjwa and Basson (2003) has provided some of the construction projects delivered locally using different categorization and innovative procurement systems. The projects of which the case studies reviewed are enlisted in table 6 below indicating the type of procurement system utilised:

No	Client	Project	Procurement Type	Project Value
1	Gauteng Provincial Government	Gautrain	DBP-FO	R 25 billion
2	Correctional Services	Kutama-Sinthule Maximum Security Prison	DBFO	R 1.8 billion
3	Correctional Services	Mangaung Maximum Security Prison	DBFO	R 1.7 billion
4	Intersite	Park City Taxi Rank	CM	R32 million
5	Telkom	Space Saver Project	CM	R 43 million
6	South African National Road Agency Limited	N3 Toll Road	DCOMF	Up to R 10 million

Table 3: Procurement Systems implemented on successfully projects in South Africa

List of abbreviations

DBP-FO	Design Build Part-Finance and Operate
DBFO	Design Build Finance Operate
CM	Construction Management
DCOMF	Design Construct Operate Maintain and Finance

FACTORS THAT INFLUENCE THE SELECTION OF PROCUREMENT SYSTEMS

Literature reviewed indicates that factors that influence the selection of procurement systems are closely linked to the following problem areas:

Project decision-making

Client objectives

Project briefing

Procurement management

Project objectives

CONCLUSIONS

Procurement systems in the South African construction industry has played a vital role in ensuring successful implementation of construction projects, but however, considering the significant roles in a given project, procurement systems in South Africa are not given the recognition as compared to countries such as United Kingdom, USA, Australia, Malaysia and New Zealand. Based on the survey of this study, it can be concluded that most factors that influence the selection of procurement system are created within the construction industry itself and few of these factors are from the external environment (Outside the construction Industry).

RECOMMENDATIONS

It is however clear from the research findings that both the factors from internal and external environments are not clearly evaluated before a decision is taken on which procurement system is to be used for a given construction project. In order to remedy and improve the role(s) of procurement systems for successful implementation of construction projects in South Africa, it is therefore recommended that:

The project team must first formulate the procurement selection criteria, and then examine the procurement systems available for selection.

Client's actual needs, requirements, objectives and project goals must be accurately conveyed to the project team in order to enable the project team to develop a sound procurement strategy.

The procurement selection criteria should contain in it a contingency measures in order to counter act any factors should these factors present themselves to the project.

Have a clear "general strategy" at a very early stage of the project which will determine broadly what has to be done, how it must be done, by whom it must be done, where it must be done and when it must be done?

The project team must however adopt a proactive, well organized and focused approach procurement management strategy for a successful implementation and ultimately completion of the project.

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