Construction project performance: the role of client knowledge and procurement systems

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Received 4 June 2020
Revised 11 January 2021
Accepted 22 February 2021

Abstract

Purpose – This study aims to investigate whether clients' knowledge about construction procurement systems influence project performance objectives and the role of procurement systems on project performance objectives in South Africa.

Design/methodology/approach – Using a two-round survey, 90 usable questionnaires from construction professionals in South Africa plus 3 expert clients were collected. The data were analysed using descriptive statistics – means, percentages and the analytical hierarchy process to determine the rank of client project performance criteria, while inferential statistics – Pearson product-moment correlation was used in establishing the relationship between the level of clients' knowledge and project performance.

Findings – It was found that the common procurement systems used are traditional, followed by management-oriented and integrated procurement systems. In addition, it emerged that client's knowledge of procurement systems shows a positive relationship with the achievement of project performance objectives. Based on these findings, it is concluded that some procurement systems being selected by clients in South Africa are inappropriately selected. This is despite the emergence of more efficient procurement systems. If procurement systems are selected based on the knowledge of the client, it will give better chances of a successful project outcome.

Practical implications – The research suggests the need for clients to seek ways to improve their understanding or increase their knowledge of procurement systems in construction. Policymakers' responsibilities in driving policies that will place responsibilities on clients to seek a reasonable way to improve their knowledge where possible is implied in the study.

Originality/value – It contributes to improving project performance by examining whether the level of knowledge possessed by a client influences project performance.

Keywords Performance, AHP, Procurement, Risk, Client, Knowledge

Paper type Research paper

The authors would like to acknowledge with thanks, the assistance of the following people in conducting the survey and interviews: Tinotenda Jeketera, Mishara Naidoo and Yudish Sumputh.

Journal of Engineering, Design and Technology

1726-0531
DOI 10.1108/JEDT-06-2020-0219

Introduction

According to United Nations (2020), many developing countries still lack basic infrastructures such as roads, hence the need for the ninth sustainable development goal – "build resilient infrastructure, promote sustainable industrialisation and foster innovation". In achieving this goal, there is the need for businesses and projects to meet the objectives set. However, despite the efforts to improve productivity, the construction industry is still underperforming in meeting project and business objectives, but some improvements have been made (Chartered Institute of Building [CIOB], 2016; Habibi *et al.*, 2019). While this under-performance is global, developing countries have worse outcomes with countries such as the United Arab Emirates seeing half of the projects overrun time (Habibi *et al.*, 2019). Similar underperformance in construction projects is reported in Sri Lanka (Santoso and Gallage, 2019). Procurement systems can improve project outcomes if used strategically (Eriksson and Westerberg, 2011). Mosley and Bubshait (2019) support this. The choice of construction procurement system varies from one project to the other, depending on the amount of information clients have on general operations within the built environment circle and this could influence project performance either positively or negatively.

Building procurement system can be defined as the combination of construction activities to produce a product (for example, building or infrastructure). Ratnasabapathy and Rameezdeen (2010) further describe this process, with reference to the client's involvement, where the client sets pre-conditions directed towards the effective attainment of specific project objectives. According to the Chartered Institute of Building [CIOB] (2010), procurement involves the selection of the most suitable organisational structure, which will be responsible for the design and construction of the project. Procurement systems used in the construction industry can be broadly characterised as traditional (separated and cooperative), Integrated (design and build) and management-oriented procurement systems (Cooperative Research Centre, 2008; Windapo and Rotimi, 2012).

According to Mosley and Bubshait (2019), building procurement systems have inherent characteristics, which allow them to meet certain project performance criteria. The cidb (2014) established that in the South African context, the selection of procurement methods is influential in achieving clients and project objectives. Each procurement system has factors, which emphasise on meeting different client and project objectives. The factors within the procurement systems are described by Kumaraswamy and Dissanayaka (2001) as factors, which address internal conditions, external conditions, performance criteria and procurement system characteristics. Windapo and Rotimi (2012) and Mathonsi and Thwala (2012) identify these factors as project characteristics, client characteristics and ease of administration.

Akinkunmi *et al.* (2018) note that common occurrences of client dissatisfaction coupled with a wide range of procurement systems to select from results in the construction industry engaging in a bid to seek and select a more efficient approach to procurement systems to better the performance criteria on building projects. Mathonsi and Thwala (2012) further identify the difficulties encountered in the industry with regard to the need and selection of alternative procurement systems. Mason (2016) notes that the emergence of new procurement systems has led to a shift from traditional methods to more efficient integrated systems, which enables better project time, quality and risk performances.

However, while there are a lot of factors (including project characteristics, client objectives and characteristics) that determine the selection of an appropriate system, client knowledge of the procurement systems (one of the characteristics of clients) is fundamental in its selection. Rwelamila and Meyer (1999) found that there is little knowledge of the different procurement systems and their variations and that procurement systems are

selected inappropriately. This lack of knowledge may be applicable to clients and members of the project team. Similarly, Warsame (2013, p. 8) found that "without knowledge and the right incentives, it is unlikely that any procurement type will lead to high quality results and an organisation with the right knowledge and incentives can adjust any procurement type to the situation and make it work". The knowledge enables clients to consider the factors within the different available procurement systems to select the most appropriate system to meet client and project performance objectives. This knowledge is informed by the client's level of experience in the construction industry, which Mathonsi and Thwala (2012) report as an important factor in the selection of the appropriate procurement strategy.

In South Africa, a country that is primarily focussed on using traditional procurement systems (Mbanjwa and Basson, 2003), the Construction Industry Development Board Construction (cidb) Industry Indicators show client dissatisfaction with regard to the quality of the works delivered, condition of the facility at handover, resolution of defective work during the construction period by the main contractor and overall quality of materials used (cidb, 2011). It has, therefore, become less viable to make use of traditional procurement systems and despite the emergence of a variety of new and more efficient procurement systems, there is inappropriateness in the procurement systems being selected by clients.

Despite the background established so far, there are still grey areas in some aspects of procurement in the South African construction industry. Typically, there is the need to add to the body of knowledge on whether clients consider the factors within the different available procurement systems in selecting the most appropriate one to meet their objectives and project performance objectives. The extant studies such as Mathonsi and Thwala (2012) and Thwala and Mathonsi (2012) have limitations. For example, they have not examined the client's knowledge of procurement in detail like the current study does. Mathonsi and Thwala (2012) adopted a Delphi (where 21 respondents) were used. While the method is developed and widely used in many studies, it has been criticised for its limitations, just like other research methodologies. The limitations are not limited to researcher bias, there is the risk that the researcher will impose his/her preconceptions on the respondents (Avella, 2016). This does not mean that the findings in the extant studies should be disregarded, rather there is the need for more studies on the topic using another methodology. The current study intends to fill this gap in knowledge by examining the procurement system frequently used on construction projects in South Africa and whether the clients' knowledge of project procurement systems is related to project performance objectives. It is expected that the study will contribute to the existing efforts to improving project performance by demonstrating or advancing the understanding and implications of client knowledge of procurement for project delivery. The implications of the findings are not limited to the responsibilities for policymakers to drive policies that enable the enforcement of client obligation to seek a reasonable way to improve their knowledge of procurement.

The study proposes that the client's knowledge of procurement systems is a key factor within procurement systems that impacts on the project performance. To conduct the study and test this proposition, the research first of all undertakes an analytical review of extant literature pertaining to construction procurement systems and factors within the system that impacts on project performance. Thereafter, it collects empirical data through a quantitative research approach that includes experts and questionnaires and finally, it provides conclusions and recommendations that address the problems of the study.

Procurement systems

This section presents a review of the main procurement systems used in the construction industry, the client project performance criteria and factors within procurement systems