

Disputes on Construction Projects: The Role Of Procurement Methods and Payment Strategies

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Abstract

This study examines the interplay between procurement methods, payment strategies and the occurrence of disputes in construction projects within South Africa. The construction sector plays a critical role in economic development; understanding these relationships is essential for improving project outcomes. The study employed a quantitative approach, utilising questionnaire surveys to gather data from 56 construction professionals. It was found that traditional procurement methods and unit price payment strategies are associated with a higher frequency of disputes, particularly in projects related to education, water and sanitation, and power and energy sectors. The study found that 60% of respondents experienced cost overruns due to disputes, while 70% reported time overruns. Key themes identified include the impact of external factors, scope creep, and the importance of positive stakeholder relationships. Based on these findings, the study concludes that payment strategies and procurement methods indirectly impact disputes, and the more flexible the procurement method, the fewer the project disputes. Therefore, the study recommends that stakeholders adopt collaborative procurement methods, implement transparent payment strategies, and enhance communication among project participants to mitigate conflict and bring about positive project performance. Further research is recommended using a larger sample size to validate the findings.

Keywords: Construction Management, Dispute Resolution, Design and Build, Traditional Procurement, Unit Price

1. Introduction

The construction industry serves as a cornerstone for economic development and is critical to a nation's growth and prosperity (Wu et al., 2023). It encompasses various activities, including infrastructure design, development, operation, and maintenance, which significantly contribute to economic development, making effective construction management practices essential (Amila, 2023). Central to these construction management practices are procurement methods and payment strategies, which play a vital role in project delivery and can significantly influence project outcomes, costs, and stakeholder relationships (Odeyinka & Kaka, 2005).

Procurement methods are described as organisational systems that delineate specific responsibilities and authorities among stakeholders involved in a construction project (Love et al., 1998). These methods establish the relationships between various elements of project execution, where payments for goods and services are a fundamental concern (Odeyinka & Kaka, 2005). The evolution of construction procurement—from a focus on the lowest cost to a more nuanced approach emphasising the best value—reflects the complexities of construction projects (Okunlola, 2012). The choice of procurement methods and payment strategies has consequences. Inappropriate selections can lead to disputes, increasingly recognised as a universal and unavoidable phenomenon in construction projects (Tariq & Gardezi, 2023). According to Johnson (2008) and Sithole (2016), disputes often arise

from issues related to payments, inadequate planning, changes in project scope and deadlines, poor communication, and quality of work, making the notion of a conflict-free project unrealistic. McGregor et al. (2008) noted that disputes are an integral part of the construction process, while Gebken II and Gibson (2006) describe disputes as disagreements that necessitate external intervention for resolution. According to Sithole (2016), disputes in construction projects can result in significant delays, cost overruns, and strained stakeholder relationships (Sithole, 2016). The inherent complexity of the construction industry, involving a multitude of stakeholders such as clients, contractors, subcontractors, suppliers, and regulators, makes it particularly susceptible to disputes (Harmon, 2003; Elmarsafi, 2008). This complexity is often compounded by the diverse skill sets and cultural backgrounds of subcontractors working on the same site, which can lead to misunderstandings and disputes (Brockett et al., 2019). In South Africa, procurement and payment strategy challenges are further exacerbated by a history of failed public sector projects, often caused by insufficient cash flow (Chadee et al., 2023).

Despite the acknowledged importance of procurement methods and payment strategies, there remains a significant gap in research examining their direct impact on dispute occurrences in construction projects. In South Africa, there is a need for more focused studies on dispute-resolution procedures, including adjudication and mediation (Povey, 2005; Maritz & Hattingh, 2015). This research seeks to bridge this gap

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by examining the interplay between procurement methods, payment strategies, and the occurrence of disputes in construction projects, towards identifying effective strategies for preventing and mitigating disputes on construction projects.

The following sections of this paper will present a review of the South African construction industry, explore the benefits and challenges associated with various procurement methods and payment strategies, outline the methodological approach employed in the study, present the findings and discussion, and conclude with actionable recommendations to address dispute-related issues in construction projects.

2. Literature Review

2.1. The South African Construction Industry

The construction industry is vital to South Africa's economy, significantly contributing to job creation, infrastructure development, and overall economic growth (Soni & Smallwood, 2023). In 2023, the South African construction sector added approximately 109.5 billion rand (roughly 5.79 billion U.S. dollars) to the country's GDP (Statista, 2024), significantly contributing to the Gross Domestic Fixed Investment. However, the industry faces numerous socioeconomic challenges, such as a shortage of skilled labour, public sector capacity to deliver infrastructure projects, load shedding and construction mafias (Mongane, 2024) that complicate project delivery and management. These challenges necessitate examining procurement methods and payment strategies, which are important for minimising disputes and enhancing project outcomes. Procurement methods in South Africa are designed to meet both primary (performance in terms of time, cost and quality) and secondary objectives (promote broad-based economic empowerment and alleviate poverty), with the public sector often bound by legislative requirements that emphasise community empowerment and skills transfer (IDMS, 2011). The selection of procurement techniques must consider these objectives to ensure effective project delivery. However, the public and private sectors exhibit different procurement dynamics, with the latter having more flexibility in method selection.

2.2. Disputes and Their Causes

Disputes in construction projects are prevalent and arise from various factors, including conflicting objectives between clients and contractors (Rauzana, 2016). The complexity of construction projects, characterised by multiple stakeholders and intricate processes, exacerbates the likelihood of disputes (Aigbavboa & Thwala, 2014). Key project goals—time, cost, and quality—are often compromised due to these disputes, which can divert resources and hinder project success. Research indicates that most disputes stem from contractual disagreements, with Gamage (2023) highlighting that many of these disputes could be

mitigated through effective contract management. The fragmented nature of construction work processes, each with teams with distinct goals and expectations, contributes to an adversarial environment prone to conflict (Nasrun et al., 2014). Disputes often escalate from claims related to financial compensation, with Oladapo and Onabanjo (2009) noting that disagreements over contract interpretation are common.

The literature also identifies several root causes of disputes, including unclear contract terms, poor communication, and unbalanced risk allocation (Fenn et al., 1997; Aigbavboa & Thwala, 2014). As the construction landscape evolves, the complexity of procurement methods increases, making it challenging to select the most appropriate strategy for a given project (Naoum & Egbu, 2016). This complexity is further compounded by external factors such as economic instability and regulatory changes, which can lead to unpredictable project outcomes (AlSabah & Refaat, 2019).

2.3. Procurement Methods and Payment Strategies

The choice of procurement methods significantly influences project delivery and the occurrence of disputes. Traditional procurement methods have been predominant in South Africa, characterised by sequential design, bid, and construct tasks (Oshungade & Kruger, 2015). However, alternative procurement methods, such as Design/Build (DB) and Construction Management (CM), have gained traction due to their potential for improved collaboration and efficiency (Mathonsi & Thwala, 2012; Shrestha et al., 2012). Payment strategies also play a critical role in shaping project dynamics. Various pricing mechanisms, including lump sum, unit price, and cost reimbursement, present different levels of risk and reward for stakeholders (Higham et al., 2022; Windapo et al., 2020). While popular for its predictability, the lump sum pricing mechanism can lead to disputes if project scopes change unexpectedly (Windapo et al., 2020). Conversely, unit price contracts offer flexibility but can result in uncertainty regarding final costs, potentially leading to payment disputes (Ogwueleka, 2021).

2.4. Conceptual Framework

Based on the literature synthesis, a conceptual framework shown in Figure 1 is proposed to examine the interplay between procurement methods, payment strategies, and the occurrence of disputes in construction projects. The framework shown in Figure 1 posits that:

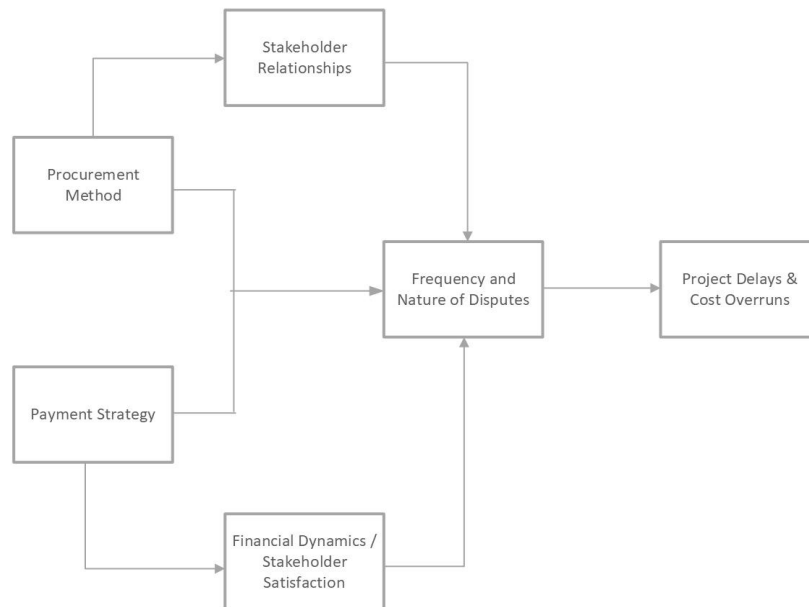


Figure 1: Interaction between Procurement Method and Payment Strategy

- the choice of procurement method directly influences stakeholder relationships and project outcomes, noting that traditional procurement methods may lead to increased disputes due to their rigid structure. In contrast, alternative methods such as the Design and Build and Management-oriented procurement methods bring about collaboration and reduce conflict.
- The selected payment strategy affects the financial dynamics of a project, influencing stakeholder satisfaction and the likelihood of disputes, suggesting that payment strategies that promote transparency and equitable risk distribution are likely to minimise conflicts.
- The interaction between procurement methods and payment strategies shapes the frequency and nature of disputes. Misalignment between these elements can lead to misunderstandings, contractual disagreements, project delays and cost overruns.

This conceptual framework provides a foundation for further empirical investigation into the relationships between procurement methods, payment strategies, and dispute occurrences on construction projects, which will be explored in the following sections.

3. Research Methodology

This section outlines the research design and methodological choices employed in this study, which investigates the relationships between procurement methods, payment strategies, and dispute occurrences in construction projects. The study adopts a positivist research paradigm and a quantitative research approach. The quantitative approach allows for an

objective measurement and data analysis, facilitating the identification of patterns and relationships between variables (Cresswell, 2014). The population for the study consists of projects that experience disputes, and the construction professionals involved in the construction procurement and dispute resolution process, such as quantity surveyors, engineers, construction and project managers, and legal experts. A purposive sampling technique is employed to select participants who possess relevant experience and knowledge (Saunders et al., 2012) regarding construction disputes from a sample frame obtained from the University of Cape Town's CBPM research database. A total of 56 responses are utilised to achieve the research objectives. According to Ott and Longnecker (2010), the Central Limit Theorem states that the sampling distribution of the sample mean approaches a normal distribution as the sample size increases, generally considered valid for sample sizes of 30 or more.

Primary data was collected using questionnaires distributed to 250 respondents that fit the study criteria with the expectation that a response rate of at least 20% would be achieved, which is usual in construction research studies (see Idrus & Newman, 2002 -27.3%; Adnan & Morledge, 2003 – 20%; and Takim & Adnan, 2008 – 20.9%). These studies demonstrate that a 20% response rate can be sufficient in drawing meaningful conclusions in construction management research. The questionnaire was composed of seven main questions. The data was analysed using descriptive statistics – means, frequencies and percentages, which facilitate the identification of the common procurement methods, payment strategies, frequency and nature of disputes and the relationship between the procurement methods, payment strategies and disputes on construction projects.

The ethical principles adhered to during the research process involved obtaining ethical clearance, participants reserved the right to refuse participation in the research at any point without facing repercussions, responses were processed without revealing the participants' identities, careful consideration was given to the questionnaire design to avoid personal and irrelevant questions, ensuring that all inquiries were pertinent to the study's objectives.

4. Data Presentation, Analysis and Discussion

This section presents the findings obtained from the data collected through questionnaire surveys. The study aimed to explore the relationships between procurement methods, payment strategies, and dispute occurrences in construction projects in South Africa. The findings are categorised into the biographical details of the survey respondents, key procurement methods and payment strategies, frequency and nature of disputes, financial dynamics/stakeholder relationships, project performance and the relationship between procurement methods, payment strategies and disputes on construction projects.

4.1. Biographical Details of the Respondents

The respondents in the study consist of a diverse set of professionals within the South African construction industry, including 17 construction managers, representing 30.36%, 16 project managers, accounting for 28.57%, and five engineers and five quantity surveyors, each making up 8.93% of the respondents. The balance of 13 respondents, representing 23.21%, held various other roles, including positions such as company and managing directors. Most have over 16 years of experience, reflecting a significant representation of experienced professionals, emphasising their knowledge and quality of input.

4.2. Project Details

The respondents were asked to identify a project in which they were involved in the last five years and on which there was a dispute. The construction projects identified are to remain confidential to protect those involved and to maintain the appeal of the development that took place. The study sought to know the type of client involved in the project, the level of client experience, and the client's organisational structure.

The data collected shows that construction projects mainly in education (16.98%), water and sanitation (15.09%), and power and energy (13.21%) public sector projects are the most prone to disputes. It was also found that the different clients, private (34.62%), the three tiers of government – provincial (32.69%), municipal (26.92%), and national (5.77%) in South Africa, frequently encounter disputes on construction projects. The clients' organisational structures predominantly include functional setups, influencing dispute management capabilities.

4.3. Key Procurement Methods and Payment Strategies used on the Identified Projects

The most common procurement methods are Traditional (41.18%) and Construction management-oriented (33.33%). Unit price or measurement pricing (75%) is the predominant payment strategy, which may influence dispute occurrences in projects and impact project outcomes.

4.4. Frequency and Nature of the Disputes on the Identified Construction Projects

The study sought to know the frequency and nature of disputes on the identified projects. The answers to this question were not mutually exclusive, and the respondents could select multiple options applicable to the identified projects. The responses showed that a project may encounter more than one type of dispute. Payment disputes were identified by 27 of the 50 (54%) respondents as the most common dispute on projects, followed by scope of works disputes. Issues like late payments, scope creep, poor project management and community protests were found to contribute to these disputes, complicating resolution efforts.

4.5. Impact of Dispute Occurrence on Project Performance

The study also sought to understand the respondents' perceptions of the dispute's impact on the identified project. The data collected in this regard are presented in Table 1. The options were not mutually exclusive. Of the 50 respondents who answered the question, 75 options were selected, translating into an average of 1.5 outcomes per respondent. The data presented in Table 1 indicates that disputes often lead to increased costs - 30 respondents (60%), and time overruns - 21 respondents (42.00%), with some projects even being abandoned - nine (18.00%). Financial losses and

Table 1: Impact of the Dispute Occurrence on the performance of the identified Project

Impact of Dispute Occurrence	Frequency (No.)	Percentage (%)
Increase in cost (cost overrun)	30	60.00%
Increase in time (time overrun)	21	42.00%
Project abandonment	9	18.00%
Poor quality	3	6.00%
Other (e.g. positive outcome)	12	24.00%

disruptions during the project implementation phase were identified as common outcomes, although some rare cases see disputes lead to positive financial resolutions in favour of the contractor.

4.6. Relationship between the Payment Strategies and Disputes

The study sought to find out whether there is a relationship between the payment strategies used and dispute occurrences on the identified construction projects. The participants were offered fifteen disputes. They were allowed to pick multiple options, but they could only select a single option for the procurement method question. Of the fifteen dispute events, for 12 of them, the traditional unit price or measurement pricing was predominantly used; for one of them, a mix of lump sum, unit rates and reimbursable for various contractors was dominant; and for two disputes (termination disputes and environmental and regulatory issues), no payment strategy was selected as they did not occur. When normalised by the number of projects on which the payment strategies are used – Unit price (98), Cost-reimbursement (12), Lump-sum pricing (2), Other hybrid payment strategies (15), the results indicate that the hybrid payment strategy (3.75) has the most dispute per project, followed by Unit price payment strategy (2.51), Cost-reimbursement (2.0), and Lump-sum pricing (0.67). This suggests systemic influences of payment methods used on dispute frequency.

4.7. Discussion of Findings

The study examines the relationships between procurement methods, payment strategies and the occurrence of disputes in construction projects. The study showed that education, water and sanitation, and power and energy projects are particularly prone to disputes. The predominance of private clients (34.62%) and various levels of government involvement suggest that stakeholder relationships are complex and often influenced by the procurement methods employed. The findings align with the literature, which posits that effective stakeholder engagement helps minimise disputes (Tariq & Gardezi, 2023). As one respondent noted, "indecisiveness of the client" can lead to significant delays, highlighting the importance of clear communication and defined roles among stakeholders. The study found that the traditional (41.18%) and Construction management-oriented (33.33%) procurement methods were the most used. This finding suggests that procurement methods significantly influence project dynamics and the likelihood of disputes. The traditional procurement method was associated with a higher frequency of disputes, supporting the idea that its rigid structure can lead to misunderstandings and conflicts. In contrast, alternative procurement methods, such as Design and Build, have been shown to bring about collaboration and reduce conflict (Mathonsi & Thwala, 2012).

Similarly, the payment strategies employed were found to impact project performance. The predominant use of unit price or measurement pricing (75%) suggests a preference for flexibility; however, this can also lead to disputes if not appropriately managed. One respondent noted, "Payment delayed", indicating that financial issues are a common source of conflict. The findings suggest that payment strategies promoting transparency and equitable risk distribution are more likely to minimise disputes, echoing findings from previous studies (Higham et al., 2022).

This research provides empirical evidence on the interplay between procurement methods, payment strategies and dispute occurrences in the South African construction industry. The findings highlight the need to carefully select procurement methods and payment strategies to bring about positive stakeholder relationships and minimise financial dynamics and disputes. The implications of this finding are significant for construction stakeholders and policymakers in the construction sector because, with an understanding of the factors that contribute to disputes, stakeholders can implement strategies to enhance communication, clarify project scopes, and establish fair payment practices. Additionally, the findings highlight the importance of stakeholder engagement and community involvement in project planning to mitigate potential conflicts.

5. Conclusion

This research examines the relationship between procurement methods, payment strategies, and the occurrence of disputes on construction projects. The findings suggest that certain project types are more susceptible to disputes, particularly in the education, water and sanitation, and power and energy sectors. It emerged from the study that traditional procurement methods and construction management-oriented approaches were the most utilised, with traditional procurement being associated with a higher frequency of disputes, supporting the notion that rigid procurement structures can lead to misunderstandings and conflicts among stakeholders. In contrast, alternative procurement methods, such as Design and Build, have the potential to bring about collaboration and reduce disputes, aligning with existing literature that emphasises the benefits of flexible procurement strategies.

The research also highlighted the role of payment strategies in shaping project dynamics. The predominant use of unit price or measurement pricing indicates a preference for flexibility; however, this approach also results in disputes if not properly managed. Based on the conclusions, the following recommendations are made to address the study problems – stakeholders should adopt procurement methods that promote collaboration and flexibility,

such as Design and Build or Construction Management, to reduce the likelihood of disputes; employ payment strategies that ensure timely payments and equitable risk distribution by establishing clear financial agreements to minimise conflicts related to payments; ensure effective communication among all parties involved in construction projects by clarifying expectations, project scope and responsibilities, thereby reducing the potential for misunderstandings. Further research is recommended using data from other contexts to enable the generalisability of the findings.

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