

Ayegba et al (2020). An Assessment of the Performance of Framework Contract Projects. NJTR. 15(3): 78-84

## An Assessment of the Performance of Framework Contract Projects

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### Abstract

*There is increasing adoption of framework contracts (FC) for construction project delivery in South Africa, but it is not yet clear what the performance of the approach is in accomplishing client's expected outcomes of projects being delivered on time, within budget and to required quality and satisfaction. In this study, the performance of FC and the variables that influences the performance is investigated empirically. A qualitative research methodology was adopted for the study. Data were collected via semi-structured interviews with key informants of eight purposively selected client organizations employing FC in South Africa. From the findings, FC is indicated to have performed spectacularly in dealing with unnecessary cost overruns, time delays, and improvement in the quality of delivery. However, it was reported that the approach work best for repetitive works and when a client has the intention of a long-term programme of work. In which case, clients also have to take care to avoid complacency from the contractors. The results provide substantial evidence that FC can perform better than the conventional approaches of short-term relationships and contracts. The result of the study provides insights that can encourage construction stakeholders to appreciate and adopt FC as a viable alternative approach for construction project delivery.*

Keywords: Framework contracts, Performance, Performance variables, South Africa.

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Received: 2020/04/01

Accepted: 2020/07/20

DOI: <https://dx.doi.org/10.4314/njtr.v15i3.11>

### Introduction

The performance of projects is primarily measured using key indicators such as the cost, time, quality and satisfaction objectives. Therefore, projects which are delivered within cost and schedule; and to required quality and satisfaction are regarded to have performed successfully. Compared to the manufacturing and other industries, construction projects have a history of poor performance, as reports of construction projects failing to meet clients expected outcomes proliferate across the globe (Flyvbjerg, Garbuio and Lovallo 2009; Nkado, 2010; Construction Sector Transparency Initiative's 2011; Baloyi and Bekker, 2011). Laryea and Watermeyer (2014) attributed the poor performance of construction projects to the development and adoption of inappropriate procurement strategies. Particularly as the traditional construction procurement strategy which is the most common and widely used procurement strategy in the construction industry has been found not to be flexible and responsive enough in handling the growing challenges of the construction industry (CIOB, 2010; Sinclair, 2011; Ruparathna and Hewage, 2015). Thus, indicating the need for developing and adopting appropriate construction procurement strategies for construction project delivery.

The under performance of the traditional procurement strategy is attributed to the fragmentation, adversarial, arms-length and short-term relationships which characterised the procurement strategy (Eriksson and

Westerberg, 2011; Suprpto *et al.*, 2015). Therefore, a shift from the traditional procurement to procurement strategies that internalise collaboration and long-term relationships such as framework contracts are advocated and its gaining adoption in the construction industry.

A framework contract which may also be referred to as "framework agreement" or "umbrella agreement" (Mouzas and Furnston, 2008) is an agreement which is reached between two parties to cover a long-term collaborative arrangement, particularly where clients have a long-term program of work in mind and are looking to set up a process to govern the individual construction or supply packages that may be necessary during the term of the framework (Glover, 2008). FC has increasingly gained adoption for construction project delivery in recent years. For example, a survey by the Royal Institute of Chartered Surveyors (RICS, 2010) in the United Kingdom (UK), reported an increase from 2.9% to 4.4% of construction projects by value were being procured using the approach in 2007 and 2010 respectively. Creamer (2016) reported that the South African government is developing FC that can be adopted by municipalities for the procurement of key infrastructures. Also, the Municipal infrastructure support Agency (MISA) releases an expression of interest for FC that will cover across twenty regions in South Africa (Creamer, 2015). The increasing adoption of FC is attributed to the potentials of the

approach in addressing the key failings of short-termism and fragmentation of the production team and processes of traditional contracting practices in response to the challenges of complexities and uncertainties in construction (Cohen, 2008). With the increasing adoption of FC in South Africa, the purpose of this study is, therefore, to investigate the performance of FC and identified the variables which could influence the performance of FC projects.

## Literature Review

### Framework Contracts in Practice

Framework contracts (FC) are increasingly being employed as a contracting strategy to deliver projects successfully in the construction industry. Sources of FC via Scopus in September 2016, using the search word "framework contracts" indicates publications on this topic from 17 countries, with the UK, Germany and Netherland dominating with 10, 5 and 4 publications respectively. FC is reported to be particularly used for high risk, high-value construction projects such as schools, hospitals, roads, and other significant capital expenditure (Construction Excellence, 2005).

A survey by the Royal Institute of Chartered Surveyors (RICS, 2010) reveals that 2.9% and 4.4% construction projects by value were procured in the UK in 2007 and 2010 respectively using FC. Similarly, of the 65 new universities projects awarded in South Africa from 2013 to 2016, available at the new university website ([www.newuniversities.ac.za](http://www.newuniversities.ac.za)), 19 are within FC. Furthermore, in a study examining innovative procurement practices at Wits University by Laryea and Watermayer (2014), the FC was explicitly indicated as one of the contracting strategy and procurement innovations adopted by the university in delivering capital projects that results within 6% control of budget over a period of 6 years.

In addition, the South African government is adopting FC which can also be embraced by the municipalities for the procurement of key infrastructures from 2016 (Creamer, 2015). The rationale for the adoption of FC by the South African government as reported was to achieve economy of scales, accelerate purchases, reduce the threat of procurement-related corruption, and ensure better prices, especially for under-resourced municipalities.

Likewise, the municipal infrastructure support agency of South Africa expresses interest in March 2016 in pioneering FC for managing contractors across 20 regions in South Africa. The rationale is to reduce the scope of resources dedicated to procurement processes, so as to focus more resources on project implementation.

Several empirical studies have reported a range of benefits associated with the use of FC, which include a significant reduction in cost that would have been incurred in several separate tendering exercises (Morledge and Smith, 2013). Lam and Gale (2015 and 2014) reported significant cost savings and contractors' performance. Also, in a study examining the procurement of pumps via FC in the UK, Holden (1995) reported a reduction of 90% in the number of suppliers used and 10-30% reduction in price. Balcik and Ak (2013) in their study on supplier selection in relief organizations, demonstrated that the use of FC delivered a 28% increase in response capacity, 13% decrease in delivery delays and 7-14% cost reduction of relief supplies by the international federation of red cross and red crescent societies in 2012. From the foregoing, FC has shown to have clear benefits capable of adding value and significantly contribute to the achievement of project outcomes.

### Construction Projects Performance

Construction projects performance varies across the various procurement approaches employed (Ling *et al.*, 2004). Therefore, Project that may have been adjudged to have performed well because of adopting traditional procurement methods, may not have had the same performance report if any of the integrated procurement methods is employed and vice versa. Also, construction projects performance varies across the various stakeholders involved in a project (Bryde and Brown, 2005). A successful project to a client may be an unsuccessful project to a contractor. Hence the performance of construction projects depends on several factors and viewpoints. Lim and Mohamed (1999) suggest two possible view points on the performance of construction projects: macro-level success and micro-level success. They explained that the end users and project beneficiaries looked at the project success from the macro level as it concerns the eventual operation/functions or long-term gains of the project. While the micro viewpoint concerns the contractors and consultants who are involve in the construction and pertains to

whether the project was achieved within cost, on time and to required specifications.

The performance of construction projects is used to indicate if the project is a success or not. In a study of the relationship among reward, employee performance and cost-time performance on construction project, Gohari *et al.* (2013) indicates that: rising prices of building materials, inclusion of additional work as a result of clients' request, deterioration in economic situation, changes in design, Poor planning and scheduling, delay in payment approval for additional work, work suspension by client, and financial difficulties are the major causes of poor performance of construction projects. Construction projects performance measurement has been dominated by the conventional measures of time, cost, and quality. Phua (2004) indicates that the performance of construction projects is the extent to which projects meet a combination of budget, timetable and technical specifications. Similarly, Nguyen *et al.* (2004) support the conventional view that a construction project is successful when it is completed on time, within budget, in accordance with specifications and to stakeholders' satisfaction.

Cox *et al.* (2003) offers a distinction between quantitative and qualitative measures of construction projects performance. The quantitative performance indicators concern cost, on time, resource management, quality control, percentage of the project complete, earned man-hour, lost time accounting, and punch list. While the Qualitative performance concerns safety, turn-over, absenteeism, and motivation. However, Cox *et al.* (2003) also acknowledge that qualitative indicators are not considered as highly reliable performance and productivity evaluation tools due to their perceived difficulty and/or inability to be measured. Notwithstanding, performance of construction projects measurement is shifting from the measurement of only the conventional indicators of cost, time and quality to the combination with other qualitative indicators such as stakeholder's satisfaction, number of disputes, health and safety, technology transfer and socio-economic issues (such as enterprise development, poverty alleviation, and empowerment) (Sohail and Baldwin, 2004; Bryde and Brown, 2005; Toor and Ogunlana, 2009).

## Materials and Methods

Data on the performance of FC and the variables that influences the performance was elicited from the narrative experience of key informants of organizations that have employed FC in South Africa. This is typical to qualitative research methodology. This is typical to qualitative research methodology in which participants are allowed to provide data in their own words meanings will be informed from their point of view in line with the interpretivist philosophy (Saunders *et al.*, 2012).

Semi-structured interviews were conducted face to face with key informants of purposively selected organizations employing FC in South Africa. The Key informant interviews involve interviewing people, who are selected for their first-hand knowledge about a topic of interest and are likely to provide needed information, ideas, and insights on the topic of interest (Kumar 1989; Marshall, 1996). Particularly, the interview questions focused on the key informant's assessment of the performance of FC in terms of cost, time and quality of delivery and the factors that influence the performances.

Sixteen key informants from eight organizations with different background and positions participated in the interviews. The organizations are thereafter coded using the pseudonyms A1 to A8. The key informants that took part in the study are of diverse set of representatives with different positions and from a wide range of backgrounds and experience in construction procurement and FC. The data collected from the key informant interviews were analysed with the aid of the Nvivo 11 pro qualitative data analysis software for windows and following thematic qualitative data analysis methodology outlined by Miles, Huberman and Saldana (2014).

## Results and Discussions

The findings are presented in a case by case analysis using matrix table following Miles *et al.* (2014) guide and word cloud with the aid of Nvivo 11 software. Using supporting direct quotes from the key informants, Table 1 shows the findings from the study on the performance of FC in South Africa. The findings are discussed below based on data presented in Table 1.

Table 1 Performance of Framework Contracts

| Org I.D | Performance of Framework contracts  |
|---------|---|
| A1      | <ul style="list-style-type: none"> <li>• “It is worthwhile in terms of the spin off benefits that you get.”</li> <li>• “It saves cost definitely.”</li> <li>• “It improves quality, and improves safety.”</li> <li>• “Time is better managed as it determines the invite to the next work package.”</li> <li>• “It promotes skills development.”</li> </ul>   |
| A2      | <ul style="list-style-type: none"> <li>• “We proud that in the last 3-4 years we haven’t gone over budget with FC.”</li> <li>• “If you want to make sure that your cost is controlled then a FC over years is the best way to go.”</li> <li>• “It also provides better speed of delivery and quality, that’s the triangle.”</li> </ul>  |
| A3      | <ul style="list-style-type: none"> <li>• “On cost, yes it does give you a more competitive cost value aspect of it.”</li> <li>• “The benefits it’s even more when you consider the time you spend with the tender process which is less and time always equals money.”</li> <li>• “It does influence the quality of work.”</li> <li>• “In general they definitely perform better because they know what you want and you know how they do their work.”</li> </ul>   |
| A4      | <ul style="list-style-type: none"> <li>• “We have delivered with great success I’m still shattered by the outcomes and results, in Solplaaaitjie, we put 7 hundred million worth of buildings in 14 months, the total cost paid by the client was 3% below the cost on average of the two projects. In Kimberly, 1% below the starting price adjusted for inflation and in Mpumalanga we were 1% above.”</li> <li>• “The Solplaaaitjie buildings have been shortlisted in an international architectural competition. Quality was therefore not compromised.</li> </ul> |
| A5      | <ul style="list-style-type: none"> <li>• “Definitely cost wise the approach serves better than normal contract.”</li> <li>• “It assists in terms of it saves time especially for procurement processes that can take forever, with the possibility of a change that can bring forth a cost implication.”</li> <li>• “It does support to deliver the project on time compared to the normal contract. Without having to return the budget money for a fiscal year.”</li> <li>• “I wouldn’t say quality wise its better, because you’ve got measures.”</li> </ul>         |
| A6      | <ul style="list-style-type: none"> <li>• “It assists and typically reduces the procurement period.”</li> <li>• “Provides technical capacity for rural municipalities.”</li> </ul>   |
| A7      | <ul style="list-style-type: none"> <li>• “It saves you time to go the market.”</li> <li>• “It’s better for labour development.”</li> <li>• “So under any circumstances, it makes 110% sense to have a FC because it safeguards the interest of any company, more than anything else, it also ensures that we have an expedited resolution of the problem that we have.”</li> </ul>  |
| A8      | <ul style="list-style-type: none"> <li>• “In terms of quality of delivery, I will say there is a benefit.”</li> <li>• “You are able to reduce the time spent on tender process.”</li> </ul>   |

### Framework Contracts Performance Cost-wise

From Table 1, all the organizations indicated that FC performs well and better than normal contracts cost-wise. This is well illustrated by the responses from A2 and A4:

“We are proud that in the last 3-4 years we haven’t gone over budget with framework contracts. If you want to make sure that your cost is controlled, then a framework contract over years is the best way to go.”-A2

“We have delivered with great success I’m still shattered by the outcomes and results, in Solplaaaitjie, we put 7 hundred million worth of buildings in 14 months, the total cost paid by the client was 3% below the cost on average of the two projects. In Kimberly, 1% below the starting price adjusted for inflation and in Mpumalanga we were 1% above.”-A4

In an African Construction and Totally Concrete conference in South Africa, one of the concerns was the cost escalations and overruns of construction projects in South Africa and according to Cokayne (2016) one of the delegates indicated that the cost of projects of projects in South Africa escalates “by 400

percent, 500 percent and even more”. Some other reports of cost escalations and overruns of construction projects in South Africa includes the Gautrain projects in which there were cost overruns from R7 billion to R25.4 billion, the soccer city stadium project in Johannesburg with cost overruns from R 1.916 billion to R 3.7 billion and the Moses Mabida stadium Durban with cost overruns from R 1.6 billion to R 3.1 billion (Nkado 2010; Baloyi and Bekker 2011). Comparing these reports to the findings on the performance of FC cost-wise indicate that FC is very cost effective.

The associated variables reported to have influenced the performance of FC cost-wise are as follows:

- “The benefit of working in the NEC is certainty about cost. It does place an obligation on the client to get their payment systems right. We’ve got one obligation and that is to pay on time. If we pay on time, then we can point fingers everywhere. But if we don’t pay on time there’s no way you can keep the contractor responsible.”- A1

- "It's because of all the good planning and hard work to make sure that all our tender qualifications and our bill of quantities are accurate."- A2
- "Since you actually build a relationship it is also a lot more efficient and again impacting on price."A3
- "The whole thing about volume discount plays a big role in it."-A3
- "We brought the contractor into a more prominent position than he could have ever been in under traditional methods and the contractor inputs contributed."-A4
- "The sharing of pains and gains principles which provide incentives for doing well." A4

These responses imply that the relationship with contractors, the large scope of work, early involvement of contractors, the use of NEC form of contracts which ensures on-time payments and the incentives provided pain and gain sharing of cost are the variables that influenced the performance of FC cost-wise.

#### **Framework Contracts Performance Time-wise**

With regards to the time performance of FC, from Table 2, it can be seen that all the organizations indicate that FC performs well time-wise when used for construction project delivery. As A3 and A5 put it:

"The benefits are more when you consider the time you spend with the tender process which is less and time always equals money."-A3

"It assists in terms of it saves time especially for procurement processes that can take forever, with the possibility of a change that can bring forth a cost implication. It does support to deliver the project on time compared to the normal contract, without having to return the budget money for a fiscal year."-A5

The variables that were suggested to have influenced the FC performance time-wise by the organisations include:

- "The early warning system provided by the NEC says that if there's an impact on time don't hide it because if you hide it you are on your own."A1
- "The repetition of work, you can ask us 99% of anything now and we can give you the rate, because we've done it so many times." A2
- "The project aren't sometimes delayed because they actually know exactly what they need to do due to the relationship you build, there is not time extension and no variation orders so that decreases all those possibilities of cost over runs."A3
- "The flexibility such that if an item is not in your contract, you can use the market related cost of that item and multiply it by the profit and overheads that you have agreed and end of story."A4
- "There's no procurement process, you're just placing an order once the framework contract is in place."A6
- "You can easily make an order for projects based on existing agreements, as opposed to

when you will have to go through check technical capabilities again."A8

These findings are consistent with the findings from other studies on the benefits of FC discussed earlier under the related literature section.

#### **Framework Contracts Performance Quality-wise**

Table 2 shows that with regards to quality of delivery, most of the organizations indicate that employing FC assists in improving the quality of their project delivery. The responses from A4 and A8 well illustrate this:

"The Solplaitjie buildings have been shortlisted in an international architectural competition. Quality was therefore not compromised. It is a quality building; there is no question about it."-A4

"In terms of quality of delivery, I will say there is a benefit."-A8

However, some of the organisation does not agree that it's the adoption of FC that improves the quality of their projects as illustrated by A5: "I wouldn't say quality wise it is better, because you've got measures."A5

Nevertheless, the variables that were indicated to have influenced the performance of FC quality-wise include:

- "Bad quality impacts on my ability to get an invite for the next work package." A1
- "Repetition also helps the subbies on more or less the same design."A2
- "If you got a good relationship it impacts everything else." A3
- "We took some of the savings and put it into the enhancement of quality that was improving things that you realised that we could've done."A4
- "Site and inspection meetings and quality control basically those entire things safeguard these three pillars of quality, cost and time." A7
- "Contractors tend to do the works to the best of their capability so as to maintain the long-term relationship and for us to always come back to them."A8

Therefore, the performance of FC quality-wise is a significant factor in maintaining long-term relationships with contractors and the familiarity of contractors by virtue of the long-term relationships and the repetitive jobs influences the performance of projects in terms of quality of delivery.

Other Performance of FC elicited from the organisations are that FC promotes skills development and better for labour development; and Since its same crop of people that you use it also enhance safety on site which is better than doing a new induction with a new person whom you are not sure understands you properly. Nevertheless, issues

concerning contractor's becoming complacent as a result of the long-term relationships and concerns relating to "not spreading the sunshine" in using same contractors for several projects some of the drawbacks in adopting of FC.

## Conclusions

The use of traditional approaches for construction project delivery is greater in practice but there is growing adoption of FC in South Africa. The findings from this study show that the FC strategy performs well with regards to cost, time and quality measures. Although this paper focused on the cost, time and quality performance, FC has shown to have performed well in terms of client's satisfaction, efficient utilization of resources, safety and skills development as reported by A1 and A7 in Table 1. This is in contrast to the reports of poor performance of construction projects using other procurement methods particularly the traditional procurement strategy. The variables that influence the performances of FC from the findings are the good relationships build with contractors, the repetitive works, the pain and gain sharing practices, the use of NEC contracts and intensive tendering and selection process in selecting suitable contractors for FC. others are the flexibility provided, the early involvement of the contractors in the project and the prospect of placing an order for new projects based on existing agreements without having to go through a new procurement process when FC is in place.

The result of the study is useful in providing insights that can encourage construction stakeholders to appreciate and adopt FC as an alternative viable procurement strategy for construction project delivery.

## Acknowledgements

The assistance of Mosetengwane Maredi, Nothando Moloi and Lebogang Mokgosi in data collection for this study is acknowledged.

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