

Contract Management Practices and Performance of Roads Construction Projects in Rwanda: Case of Rwanda Transport Development Agency

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Abstract: *Poor public contract management, especially in procurement of projects works has contributed to poor performance of roads construction projects. The main aim of the study was to examine the relationship between contract management practices and performance of roads construction projects in Rwanda. The study was anchored on Two-Factor Theory while explanatory research design was used. The study utilized questionnaire as a data collection instrument and analyzed using inferential statistics. The study findings revealed that contract negotiations was positive and statistically significant ($\beta = 0.318, p < 0.05$). Further, statistical results showed that there was a positive and no significant relationship between contract monitoring and performance of roads construction projects ($\beta = 0.056, p > 0.05$). The study recommends that a capacity building and knowledge transfer plan be structured and put in place in order to eliminate any route cause that can lead to future negligence of negotiations practices which may lead to significant long term issues which may affect projects performance negatively.*

Keywords: Contract Monitoring, Contract Negotiations, Performance and Two-Factor Theory

I. INTRODUCTION

1.1 Background

Contract management for roads has been the norm in most countries of the world, some countries do not have a sufficient industry of independent contractors and road works are mostly done by force on account or awarded to state construction agencies on a negotiated basis. In many of these countries, not only are costs high and quality low, it is common for suppliers of construction materials and services to have monopoly power, further increasing inefficiency and lowering quality (World Bank report, 2012). Globally, there is a meteoric growth within the road construction industry, which outpaces that of global Gross Domestic Product (GDP) with major concentration in China, the United States and India. However, Sub Saharan Africa is characterized by limited number of firms dominating large scale-works, mainly Chinese and European contractors (Ling *et al.*, 2009).

Contract management takes place during the operational phase of the contract; i.e. after the contract has been awarded to the preferred supplier or service provider and the goods/works delivered and service/s are up and running. Contract management should be aligned to the strategic goals and objectives of the relevant institution of government as well as risk mitigation strategies and supported by an established framework and policy. The focus should be on why the contract is being established and on whether the contractor will be able to deliver in time and technical terms. Careful consideration must be given to how the contract will work once it has been awarded. After the contract has been formulated and awarded, the process turns to three main namely works delivery, contractor relationship and contract administration (World Bank, 2018). A contract management system is critical to protecting the interests of the organization which include “establishing standards and evaluation criteria for assessment; ensuring the various stakeholders know what their roles and responsibilities are; measuring, monitoring and evaluating performance; collecting reliable data for decision-making; documenting poor performance; and establishing a process to apply corrective measures. The primary purpose of a contract management system, as a business process within procurement process, is to provide a comprehensive solution, which will ensure that all contracts are performed in compliance with the terms and conditions thereof (UN, 2012).

A contract is the establishment of the basis and upkeep of a favorable relationship between the contracting firm and contracting entity. It too shapes a basis for the acknowledgment of the extend deliverables consequently ensuring the accomplishment of value for money. On the off chance that a contract comes up short to address the significant issues

required within the understanding, such as, word ambiguities, it gets to be difficult for the contracting agency to base a positive working relationship with the contracting company. In cruelty of that, certainly there are practices that the contracting authority can carry out upon granting a contract to boost the contractor's execution and subsequently the adequacy within the contract execution (Lowe, 2013). Management of contract commences with contractor monitoring and approval administration. This is vital in empowering the contracting organization to find out that the contracting company is undertaking his duties and satisfying his commitments in compliance with the contract. This too permits the contracting organization to pinpoint any issues or issues before that may emerge and offer timely arrangements. Especially, the blueprint of contractor supervision and approval management includes checking, controlling, and assessing the contractor's execution; assessing the quantity and quality of administrations, works, or items conveyed; and distinguishing and dealing with risks (Russel *et al* 2017).

There are issues that are being observed as poor contract management causes and affecting government contracts steam. Those were failure to undertake basic due diligence, failure to conduct need assessment, unclear definition of the scope of work or terms of references or technical specifications, failure to observe fundamental principles governing public procurement like transparency, competition, economy and fairness. It was observed that; the current contract management issues include deviation from the initial purpose of the contract, execution of additional works without a prior written addendum, additional works exceeding 20%, delays to respond to contractor's notices, delayed payments or partial payment which cause delays in execution of contracts, failure or delay by procuring entity to take measures in case of default by the contractors. The extent of poor public contract management, especially in procurement of works projects leading to government loss remaining challenging in Rwanda. It is worth noting that projects suffer from the frequent lack of good contracts management (GoR, 2014). Therefore, this study intended to examine the relationship between contract management practices and roads construction projects performance in Rwanda: Case of Rwanda Transport Development Agency.

II. REVIEW OF RELATED LITERATURE

2.1 Theoretical Review

Two-factor theory guided the study in explaining the relationship between project success and failure from the point of their underlying factors. This theory indicates that the factors leading to 'satisfaction' are separate and distinct from the factors that lead to 'dissatisfaction'. Hence satisfaction and dissatisfaction can exist independently and simultaneously so long as the factors producing them exist. It postulates that the opposite of "Satisfaction" is not "Dissatisfaction" but "No satisfaction", and the opposite of "Dissatisfaction" is not "Satisfaction" but "No dissatisfaction" (Robbins, 2005). Applying this theory to the project situation then puts the success and failure question into a dual continuum, rather than a dichotomous, situation. We can speak of "success", "no success", "failure" and no "failure" of aspects of a typical project within the phases of its life cycle based on the influencing factors. Therefore in the project situation, the factors that lead to success could, sometimes, be separate and distinct from the factors that lead to failure i.e. the absence of those success factors should not always be seen as the only causes of failure. Hence there could be a condition for a project in which assessment will result in "no success" without necessarily implying "failure". In practice, this is realised by using multi-measures to assess projects. In such a situation a project could fail in some criteria but perform very well in others. In assessing a construction project thus, a fundamental theory to embrace is that the absence of success does not necessarily indicate a failure and vice versa. This position is explained by considering the various interest groups (stakeholders) within a typical construction project with diverse focus, expectations and what is of essence to them across the project life cycle. This realisation should underpin the philosophy of all project performance measurement if holistic or systemic approach is to be adopted.

According to Beatham *et al.*, (2004), the present practice of project success/failure measurement encourages the measurement of project performance with "lagging indicators" and leads us to expect project "autopsy reports". This, however, does not offer opportunity for change and improvements as expected from assessment in the first place. If the concept of organisational learning (Senge, 2006) could be of benefit to the on-going project, and if lessons learned from a completed project could provide a guide for future projects, then it is the case that assessment should cover its entire "life story". The question here is, whether the success or failure of a project is of any relevance to the project after they had occurred? To correct these, such measurements should always be aimed at giving opportunities to change and, always leading to improvements in performance. This suggests, then, that the assessment of a typical construction project should be done throughout its life cycle, with the intention of declaring the true state at any point in time, in order to ensure that the necessary objectives are achieved and to ensure improvements in those areas where success is not being achieved.

This calls for the determination of what is happening to the project in all its aspects throughout its life cycle and be able to predict performance based on real-time information (Russel *et al.*, 1997). Indeed, Mian *et al.*, (2004) noted that as human health is maintained by identifying and monitoring those factors that have the potential of influencing it, so must those critical factors be monitored which have the potential of influencing the project health; and “this approach”, they opined, “is applicable to all phases of the construction projects and many construction procurement methods”. In that article “project health” was said to be synonymous to “project performance”.

2.2 Empirical review

2.2.1 Contract negotiations and performance

Commercial contracts that run smoothly throughout their lifespan are a rarity. Some go wrong, uncontrolled price escalations, delivery problems, payment issues, unexpected changes in the market, miscommunications or equipment failures. While it's hard to anticipate everything, many of the issues that arise have their roots in poor negotiation practices. A contract can be regarded as a success when these conditions are met, both organizations understand their contract rights and obligations and adhere to the, the expected business benefits, both financial and operational, are being realized, internal stakeholders are satisfied with the deal, a performance monitoring process exists, and it's efficient and fit for purpose and the supplier is responsive and committed to resolving issues. Negotiating the terms of a contract must take into account all of the above. Depending on the commodity or service, the basic elements of price, delivery, quality, service, payment terms and other operational issues need to be agreed (Sievo, 2020)

Contract negotiations process has to target on selecting a qualified and performing provider, otherwise, the negotiating agency has to reject any provider bid and formally end negotiations, select the next most highly qualified and attempt to negotiate a contract with that provider at a reasonable and fair price for which project performance can be measured without losing value for money. The Organization must continue this process to select and negotiate with providers until the contract is awarded. Next, are those potential sticking points which can determine how well the contract will work in practice. These include defining the key performance indicators which is used to monitor supplier/contractor Performance, reporting requirements content, frequency and review meetings, communication channels, order & delivery practices, and any system integrations that may need to be in place, key contacts at both parties for dispute resolution, disaster management and continuity and training and skills transfer requirements. Both parties to the negotiation have their own objectives and the aim is to satisfy at least most of them and reach an amicable, or at least acceptable, solution (Kam, 2020)

H₀₁: Contract negotiations have no significant relationship on performance of roads construction projects.

2.2.2 Contract monitoring and performance

Contract formation is a series of pre-award procurement activities between client and a contractor that results in a contract. Excellence in contract monitoring during the contract formation or pre-solicitation phase begins with specifying the need, establishing contract goals, identifying potential risk when using procurement tools to develop specifications and a contract that effectively addresses the established objectives. Components that make up the pre-solicitation process include the pre-award orientation or pre-meeting with applicable program and contracting officials prior to the post award orientation conference so that there is a clear understanding of their specific responsibilities and restrictions in administering the contract. The time spent on contract formation will reduce the amount of time spent administering contracts. It will also aid in the development of a plan for monitoring contract performance (Wu *et al.*, 2014). Contract monitoring points include, but are not limited to: deliverables, timetables, payment triggers, quality of deliverables and the information and reports the vendor must produce so performance can be monitored. The contract cannot be properly monitored and enforced unless these points are incorporated into the contract at contract formation.

Tracking the performance of the contractor is the principal function of proper contract monitoring and administration. The purpose is to ensure that the contractor is performing all duties in accordance with the contract and the client to be aware of and address any problems or issues promptly. Not every contract will require the same level of monitoring. All contracts should be reviewed periodically within the contract term taking into account size or contract value, associated risk, sensitivity (contracts receiving high volume of public scrutiny), and type of contract and services being provided. Small value or less complex contracts may require minimum monitoring. However, that does not preclude the possibility of more detailed monitoring if deemed necessary. Conversely, large contracts may not require extensive monitoring if the items or services purchased are not complex and client is comfortable with the contractor's performance and the level of risk associated with the contract. When assessing risks to determine the level of

monitoring, the identified risks should be linked to the monitoring plan. This function is separate from, but closely related to, the role of project manager. Typically, a project manager plans and organizes those resources required by one or more parties to a project, and coordinating use of those resources, as needed, for completion of the project. More complex projects may involve multiple contracts, and simple projects may not have a separate project manager assigned (Bartsiotas, 2014).

An organization will always need to move at a fast step, in order to solidify its place in the market. What construction project contract management style now might shortly soon become outdated and ineffective in the coming future. Assigning a staff the duty to assess the process periodically (on monthly, quarterly or annually). Highlighting the achievements you have had as an organization, discuss the new challenges or risks that have appeared, and make changes to the contract management procedure as much as needed in order to keep achieving your desired results that indicate the project performance (Alison and Dean, 2012)

H₀₂: Contract monitoring has no significant relationship on performance of roads construction projects.

III. METHODOLOGY

The study employed an explanatory research design examining on the relationship between independent and dependent variables while the study sample size comprised of 110 respondents. Five point likert scale close ended structured questionnaire were used as a data collection instrument while inferential statistics were used to draw inferences from the data. Multiple linear regression analysis was applied in the study to test the formulated hypotheses and expressed as;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

Where,

Y = Performance

X₁ = Contract Negotiations

X₂ = Contract Monitoring

β₀ = Constant

β₁-β₂ = Coefficient of estimates

ε = Error term

IV. DATA ANALYSIS

4.1 Correlation Analysis

Statistical findings in Table 1 revealed that there was a positive and significant correlation between contract negotiations and performance (r = 0.490, p<0.05). More so, the correlation between contract monitoring and performance had a positive and significant relationship at (r = 0.420, p<0.05). Therefore, it can be concluded that both contract negotiations and contract monitoring are positively correlated to performance of roads construction projects at 5% level of significance.

Table 1 Correlation Matrix

	Performance	Contract Negotiations	Contract Monitoring
Performance	1		
Contract Negotiations	0.490**	1	
Contract Monitoring	0.420**	.393*	1

Source: (Field Data, 2021)

** Correlation significant 1% (1-tailed). * Correlation significant 5% (2-tailed).

4.2 Regression Analysis

The statistical findings in table 2 revealed that there is presence of the association between the predictor and outcome variables ($R^2 = 0.326$) implying that the combined prediction of the two predictor variables accounted for approximately 32.6% of the total variation on performance of roads construction projects. Statistically, the model was fit in predicting the contribution between the study variables which was significant at 5% level of confidence ($F = 14.829, p < 0.05$).

The first hypothesis stated that contract negotiations have no significant relationship on performance of roads construction projects. The study findings revealed that contract negotiations was positive and statistically significant ($\beta = 0.318; p < 0.05$). This therefore implies that a unit change in contract negotiations increases performance of roads construction projects by 0.318 units.

The second hypothesis stated that contract monitoring has no significant relationship on performance of roads construction projects. Statistical results showed that there was a positive and no significant relationship between contract monitoring and performance of roads construction projects ($\beta = 0.056, p > 0.05$). Due to statistically insignificant p-value, the hypothesis was accepted and it was concluded that contract monitoring does not statistically and significantly influences performance of roads construction projects.

Table 2: Inferential statistics

Model	Unstandardized Coefficients		Standardized Coefficients		T	Sig.
	Beta	Std. Error	Beta			
1 (Constant)	0.419	0.470			2.591	0.004
Contract Negotiations	0.353	0.123	0.318		2.871	0.005
Contract Monitoring	0.045	0.096	0.056		0.472	0.638
Model Summary						
R	0.571					
R Square	0.326					
F	14.829					
Sig.	0.000					

* Significant at 0.5 level (2-tailed), ** Significant at 0.01 level (1-tailed)

V. CONCLUSION AND RECOMMENDATION

The study examined the relationship between contract management practices and roads construction projects performance in Rwanda: Case of Rwanda Transport Development Agency. The study concludes that contract negotiations practice have a significant relationship with the performance of road construction projects in Rwanda Transport Development Agency. The contract monitoring practice does not have significant relationship with the performance of road construction projects in Rwanda Transport Development Agency.

Considering the good practice found in the agency, associated to contract negotiations and its positive relationship with performance of roads construction projects. It is therefore recommended that a capacity building and knowledge transfer plan be structured and put in place in order to eliminates any route cause that can lead to future negligence of negotiations practices which may lead to significant long term issues with agency contractors/consultants and eventually, either a contentious renegotiation or contract cancellation that may negatively affect projects performance. It is from that, the contract can be built correctly and lay foundation for a mutually advantageous relationship

The Rwanda Transport Development Agency management has to ensure that a system exists in the organization for documenting and reporting on a contractor’s performance in meeting contract requirements, and assign responsibility and management accountability for completeness of the contractor’s performance for documenting and reporting on a contractor’s performance. The following components are recommended as necessary for an effective contract monitoring system; continuous training of agency staff in contract monitoring, setting up internal rules and procedures for contract management in order to be consistent in all matters, contingency plans, setting up performance measures, and post-award meetings, contract administration plan, organized contract files, payments modalities linked to satisfactory performance, regular programmatic reports and access to records and right to documentation.

Area for further research

The study recommends further study in the future, to be conducted on:

- Contract management challenges for roads construction projects
- Internal and External factors impacting procurement of roads construction projects in Rwanda
- E-procurement challenges in contract management for roads construction projects
- Strategic sourcing on procurement performance for donor funded projects in Rwanda

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