

# Influence of Framework Contracting on Procurement Performance of Geothermal Development Company, Kenya

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**Abstract:** *Framework arrangements represent a way of purchasing involving placing one-off orders for recurrent contracts for works or supplies by optimizing volume purchasing discounts and minimizing repetitive purchasing tasks. As such, the general objective of this study was to investigate the influence of framework contracting on procurement performance at Geothermal Development Company. The study used descriptive survey research design and targeted a population of 127 employees attached to procurement, administration and finance departments thereafter 96 were sampled for the study. The data for this study was obtained using questionnaires which were structured in form of closed ended questions. The analysis of data was conducted using SPSS program. Findings of this study were considered significant in enhancing strategies towards effective implementation of framework contracting in attempt to improve the performance of the procurement function at Geothermal Development Company. It was established that framework contracting techniques had a moderate positive relationship with procurement performance ( $r=0.357$ ). Further, it was found out that Early Supplier Involvement and Supplier Relationship Management had moderate to strong positive relationship with procurement performance as indicated by ( $r=0.404$ ) and ( $0.681$ ) respectively. The study established that framework contracting was adopted as a strategic technique (mean=4.39) at Geothermal Development Company and was frequently applied (mean=3.66). The study findings led to the conclusion that procurement performance at Geothermal Development Company was measured with regard to the role of framework contracting. Consequently, it was concluded that implementing framework contracting reduced cost and promoted procurement performance in the Company. The study recommends increased awareness towards adoption of framework contracting as a means of cutting on total procurement costs.*

**Keywords:** Procurement Performance, Framework Contracting, Supplier Relationship Management, Early Supplier Involvement and framework techniques

## 1. Introduction

The procurement function has consistently gained popularity among various organizations across the globe. Most linked to production is procurement, which plays an increasingly important role for an organization's profitability (Larsson, 2008). By an efficient procurement there is potential for substantial competitive advantages (Langley, 2008) as the largest part of the cost of goods sold are in purchased raw materials, components, and services. The procurement function is transforming and gets broader in its context (Virolainen, 1998) and it has recently been given more attention and is nowadays seen as a necessity in creating value stream excellence (Hines, 1996).

Well-designed supply contracts are essential to effective procurement (Anderlini, L. and L. Felli, 2005). By fixing obligations and promises, contracts protect each party in a procurement transaction against the risk of unexpected changes in the future behaviour of business partners, thereby allowing to safely and efficiently plan, invest, and produce in decentralized supply chains. Contract obligations ensure, for example, that a buyer will receive the right service or good when and as needed, as promised by her supplier; and that the supplier's investment specific to a particular procurement will not be „wasted“, in the sense that the buyer will indeed buy what she ordered at the agreed terms.

The changes are impacting pressure on how the procurement function performs its internal and external processes and procedures in order to achieve its objectives. The ability to

realize procurement goals is influenced by internal force and external force. Interactions between various elements, professionalism, staffing levels and budget resources, procurement organizational structure whether centralized or decentralized, procurement regulations, rules, and guidance, and internal control policies, all need attention and influence the performance of the procurement function. (Patrick and Sonny, 2001).

This has led to increased procurement activities that have seen both public and private organizations spending huge sums of money in the procurement of goods, works and services. The greater recognition of purchasing role in such organizations has necessitated the adoption of strategic purchasing practices with a view of reducing total procurement costs and promoting efficiency. One of the procurement strategies that have been adopted in the recent past is framework arrangements. The report on Public Procurement-Framework arrangements by EU (2011), there is a long tradition of using framework arrangements in a number of EU member states including the Nordic countries, France and the UK. This method of purchasing has generally involved a contracting authority (or authorities) advertising an opportunity and then entering into a contract or other arrangement with one or more economic operators for the provision of works, supplies or services over a fixed period. Consequently, this strategy is yet to be exploited particularly in the Kenyan public procurement as evidenced by the Guideline for Framework Contracting provided by the PPOA.

Framework arrangements represent a 'smarter' way of purchasing than placing 'one-off' orders for recurrent contracts for works or supplies; by, for example, optimizing volume purchasing discounts and minimizing repetitive purchasing tasks. A key aim of a framework arrangement should be to establish a pricing structure; however this does not mean that actual prices should be fixed but rather that there should be a mechanism that will be applied to pricing particular requirements during the period of the framework. It should also be possible to establish the scope and types of goods/ services that will need to be called-off (CIPS Knowledge Works Summary). Public Sector Directive defines framework agreement as "an agreement between one or more contracting authorities and one or more economic operators, the purpose of which is to establish the terms governing contracts to be awarded during a given period, in particular with regard to price and, where appropriate, the quantity envisaged (PLA, 2012).

One of the framework arrangements that is gradually gaining popularity is framework contracting in the purchasing and supplies function. A framework contract has a consideration of a monetary sum paid up front by the buying organization to the supplier. This payment is made in order to create a contract on the terms and conditions offered by the supplier to the buying organization so it is important to first ensure that the terms and conditions are correctly drafted so that the supplier is tied in to what has been agreed. Consideration is of course an essential element of the contract; without consideration, either party may withdraw at any time. The consideration may be a purely nominal sum which will, however, in the event of a dispute, normally be interpreted by the courts as confirmation that the parties are happy to be bound in the legal sense.

Other expressions associated with framework contracts include 'term contracts' which are generally framework contracts, but may also be encountered in other buyer/supplier situations and are arrangements put in place for a fixed period of time. These are sometimes referred to as 'period contracts'. Where a contract of this kind is put in place without a specified end date it is sometimes called a 'running contract' or 'perpetual contract'.

With recent developments in purchasing, it is significant that what is measured is not only important to the entity/organization but should also cover all core areas and activities of procurement (Department of Public Works, Queensland Government, 2006). Though purchasing performance may mean different things to different people (CIPS Australia, 2005), its focus on financial and non-financial benefits, efficiency of procedures, and effectiveness, and ability to establish a range of measures to evaluate procurement activities, is noticed by many (Department of Public Works, Queensland Government, 2006).

However, coming up with a precise meaning of purchasing performance is still difficult. This is because purchasing performance covers broader areas of procurement, for instance: performance of the purchasing function, the purchasing department, the purchasing process on a given contract, employees of the procurement department, the supplier base and many others (Knudsen, 1999).

Organizations which do not have performance means in their processes, procedures, and plans experience lower performance and higher customer dissatisfaction and employee turnover (Artley & Stroh, 2001, Amaratunga & Baldry, 2002 and CIPS Australia, 2005). Measuring the performance of the purchasing function yields benefits to organizations such as cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage as was noted by Batenburg & Versendaal (2006). A downturn, when companies must consider every avenue for cutting costs in order to simply survive, the procurement department plays an increasingly important role in achieving this strategic goal. A purchasing performance figure benchmarks the target achievement within the organization while functioning at the same time as a key performance indicator for the control and allocation of liquidity respectively assets (Arthur, 2009).

According to the PPOA, Guidelines for framework contracting 2010, procuring entities are required to make use of single award framework contracts, under which frequently bought items would be consolidated into contracts for supply at an agreed price over a defined contract term, with orders being placed at the contract price when required. By consolidating such requirements into framework contracts, the procuring entity should be able to make savings on the administrative costs of procurement and to achieve better prices through larger volume contracts.

A tender document and a contract agreement for an indefinite quantity framework contract must Specify the period of the contract, including the number of options, if any, and the period for which the procuring entity may extend the contract under each option; Specify the total minimum and maximum quantity (ceiling amount) of goods ,services or works the procuring entity will acquire under the contract (to ensure that the contract is legally binding, the minimum quantity must be more than a nominal quantity, but it should not exceed the quantity that the procuring entity is fairly certain to order) ; Include a statement of work, specifications, or other description, that reasonably describes the specific requirements, nature, complexity, and purpose of the goods ,services or works the procuring entity will acquire under the contract in a manner that will enable a prospective firm or individual to decide whether to submit a tender; and State the procedures that the procuring entity will use to issue orders, including the ordering means, e.g. electronically, (PPOA).

The Geothermal Development Company (GDC) is a 100% state-owned company, formed by the Government of Kenya as a Special Purpose Vehicle to fast track the development of geothermal resources in the country. Geothermal energy is an indigenous, abundant, reliable and environmentally-friendly source of electricity. The creation of GDC was based on the government's policy on energy Sessional paper No. 4 of 2004, and the energy Act No.12 of 2006 - which un-bundled the key players in the electricity sector to ensure efficiency.

The search for geothermal energy is not new in Kenya. It started in 1957. But this has so far yielded 559.3 MW only of installed geothermal capacity against a massive potential estimated at 7000MW to 10,000MW. Evidently, the speed

of harnessing geothermal resources has been too low necessitating the creation of GDC. Kenya's GDP is expected to grow by at least 10% from 2012. In Vision 2030, Kenya aspires to become a mid-income economy. To attain Vision 2030, the government's forecast to generate 15,000 MW, 5000MW will come from geothermal. Today, the total effective energy installed capacity stands at 2123 MW. For a long time, Kenya has relied on hydroelectricity with perennial power outages forcing the government to invite emergency power producers who use diesel to generate electricity. This stop-gap measure is a two edged sword. First, it increases the cost of electricity and second, it causes massive pollution. The government has identified the country's untapped geothermal potential as the most suitable indigenous source of electricity. GDC will drill 1400 steam wells to provide steam for the generation of 5,000MW of geothermal power by 2030.

The company has mandate to promote rapid development of geothermal resources in Kenya through surface exploration and drilling for steam; to avail steam to power plant developers for electricity generation; to manage the geothermal reservoirs- to ensure constant supply of steam for power generation; to promote alternative uses of geothermal resources other than electricity generation. These include green house heating, drying of grains, pasteurizing milk, cooling and heating of rooms, among others (GDC, 2015)

## 2. Statement of the Problem

The Public Procurement Oversight Authority (PPOA) (2007) has observed that there is rampant use of the Request for Quotations (RFQ) Method by procuring entities in most of their procurements. Further, procurement units pre-occupy about 90% of their time in processing procurements through the aforesaid method. GDC has continuously spent large sums of money and time on its tendering processes and supplier evaluation exercises in the recent past. This has compromised the achievement of the organization's objectives especially with regard to the reduction of total procurement cost and lead-times in procurement processes. To forestall these challenges, PPOA has prepared Guidelines for Framework Contracting as instructions for making awards of indefinite-delivery framework contracts pursuant to Section 9(c)(i) and (iv) of the Public Procurement and Disposal Act, 2005.

However, Mugo (2003) reports that these guidelines have not been widely put into practice in public procurement practices. For a long time, Kenya has relied on hydroelectricity with perennial power outages forcing the government to invite emergency power producers who use diesel to generate electricity. This stop-gap measure is a two edged sword. First, it increases the cost of electricity and second, it causes massive pollution. The government has identified the country's untapped geothermal potential as the most suitable indigenous source of electricity. GDC will drill 1400 steam wells to provide steam for the generation of 5,000MW of geothermal power by 2030. To achieve the various objectives as envisioned in the GDC's mission statement, there is dire need for comprehensive measures to enhance cost management for the company. Procurement being an area characterized with huge expenditures,

strategies should be implemented towards ensuring cost efficiency, and such is framework contracting technique. This study therefore sought to analyze the factors affecting implementation of framework contracting on procurement performance at GDC.

## 3. Objectives of the Study

The study was guided by the following objectives;

- 1) To assess the effect of framework contracting techniques on procurement performance
- 2) To establish the role of Early Supplier Involvement in framework contracting on procurement performance
- 3) The effect of supplier relationship management in implementing framework contracting on procurement performance

## 4. Research Questions

- 1) What is the effect of framework contacting techniques on procurement performance?
- 2) How does Early Supplier Involvement in framework contracting affect procurement performance?
- 3) What is the effect of supplier relationship management in framework contracting on procurement performance?

## 5. Conceptual Framework

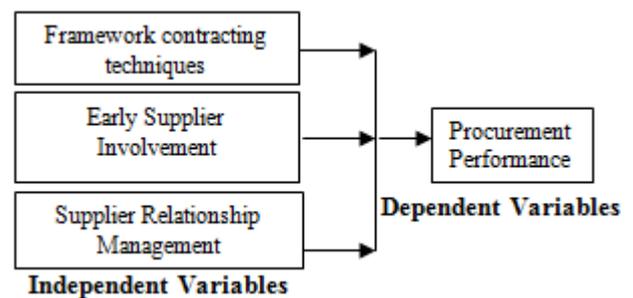


Figure 1: Conceptual Framework

The conceptual framework above presents the relationship between the various variables in the area of study. It shows the influence of framework contracting on procurement performance. The factors are aligned to the objectives of the study which include; to assess the effect of framework contracting techniques on procurement performance, to establish the role of early supplier involvement in framework contracting on procurement performance and to determine the effect of supplier relations management in implementing framework contracting on procurement performance. Therefore the conceptual framework presents a diagrammatic linkage of framework contracting techniques and procurement performance, supplier involvement and procurement performance and finally the effect of supplier relations management in implementing framework contracting on procurement performance.

## 6. Literature Review

### 6.1 Theoretical Framework

The procurement function has not been given the recognition it deserves in developing countries, in most public entities,

regardless of the effort by the partners like the World Bank, the International Trade Organization, the United Nations Conference on Trade and Development, the World Trade Organization and, others. This could be deliberate or sheer ignorance on the value the procurement function could contribute to any organization (Telgen, Zomer, & de Boer, 1997). While functions like Human Resource and Finance can have their performance measured, this is not the case with the procurement function. The failure to establish performance of the procurement function has led to irregular and biased decisions that have costly consequences to every entity.

Organisations which do not have performance means in their processes, procedures, and plans experience lower performance and higher customer dissatisfaction and employee turnover (Artley & Stroh, 2001, Amaratunga & Baldry, 2002 and CIPS Australia, 2005). Measuring the performance of the purchasing function yields benefits to organizations such as cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage as was noted by Batenburg & Versendaal (2006). A downturn, when companies must consider every avenue for cutting costs in order to simply survive, the procurement department plays an increasingly important role in achieving this strategic goal. A purchasing performance figure benchmarks the target achievement within the organization while functioning at the same time as a key performance indicator for the control and allocation of liquidity respectively assets. (Arthur, 2009).

Coordination of public-sector sourcing of some types of goods and services by procurement of framework agreements (FAs) seems to be increasing in the EU. The purpose is, through reduced transaction costs and lower purchase prices, to permit cuts in public-sector costs. Different countries use different FA models. The surveys show that Framework Agreements are common; that different forms of these agreements are used in different countries; and that the countries are working actively to make it easier for SMEs to become FA suppliers. The study also shows that many SMEs have succeeded in obtaining FAs, which indicates that these agreements do not necessarily constitute barriers to SMEs' entry. Nonetheless, it is important not to draw far-reaching conclusions on the basis of the questionnaire survey, since the data collected have been at an aggregate level. To attain true clarification of how FAs are affecting the supplier markets and SMEs' scope for participation, studies that tackle the issue in greater depth are needed (Arnek, 2004).

## 6.2. Systems Theory

Systems theory is a concept that originated from biology, economics, and engineering, which explores principles and laws that can be generalized across various systems (Yoon and Kuchinke, 2005: 15; Alter, 2007: 35; Dubrovsky, 2004: 112). A system is a set of two or more elements where: the behavior of each element has an effect on the behavior of the whole; the behavior of the elements and their effects on the whole are interdependent; and while subgroups of the elements all have an effect on the behavior of the whole, none has an independent effect on it (Skyttner, 1996:7). In other words, a system comprises of subsystems

whose inter-relationships and interdependence move toward equilibrium within the larger system (Martinelli, 2001: 73; Steele, 2003: 2).

Since systems theory considers the input-throughput-output component and their interactions both within themselves and with the external environment, the elements of purpose, people, structure, techniques and information must be coordinated and integrated by the managerial system, in order to maximize value for the organization (Randolph and Blackburn, 1989: 103; Montouri, 2000: 66). In open systems, the goal of transformation is to improve horizontal and vertical fit of the subsystems with each other, and within the organization. There must also be a fit between the organization and its external environment. For example, an organization will need information about certain characteristics of its tasks, its employees and its own structural features in order to fit its employees with the tasks they face in particular organizational positions (Fioretti and Visser, 2004: 16). Thus, in analyzing organizations, the open-systems approach investigates the repeated cycles of inputs, transformation, and output, which comprise organizational systems and subsystems (Yoon and Kuchinke, 2005:19). This study found relevance in this theory considering in attempts to enhance procurement performance, the framework contracting techniques, supplier relationship management together with early supplier involvement should be view as one entity.

## 6.3. Techniques of Framework Contracting

According to Public procurement policy, (2005) provide that framework agreements actually relate to two different situations: framework agreements that establish all the terms and those which do not establish them all. Purely for explanatory purposes, the first kind may be termed framework contracts and the second framework agreements *stricto sensu*. It is also useful to recall that framework agreements that establish all the terms (framework contracts) are "traditional" public contracts. Framework agreements that establish all the terms (framework contracts) are legal instruments under which the terms applicable to any orders under this type of framework agreement are set out in a binding manner for the parties to the framework agreement in other words, the use of this type of framework agreement does not require a new agreement between the parties, e.g. through negotiations, new tenders etc. Framework agreements that do not establish all the terms (framework agreements *stricto sensu*) are by definition incomplete: this type of framework agreement either does not include certain terms or does not establish in a binding way all the terms necessary so that any subsequent orders under the framework agreement can be concluded without any further agreement between the parties. In other words, some terms still have to be established subsequently.

Whether a term is or is not established depends on national law; similarly, in the case of a framework agreement that does not establish all the terms and which is concluded with one economic operator, it is national law which determines whether this operator is obliged to supplement its tender. Furthermore, the answer to the question whether an economic operator who is party to a framework agreement (single or multiple) that establishes all the terms is obliged

to deliver the agreed goods, work or services under the terms established and whether the contracting authority may possibly compel him to do so also depends on national law, as does the question whether an economic operator can oblige a contracting authority to order goods, services or works (Public procurement policy, 2005).

#### **6.4. Early Supplier Involvement**

Supplier selection is widely recognized as the most important responsibility of the purchasing function because the organization's suppliers can affect the price, quality, delivery reliability and availability of its products (Pearson and Ellram, 1995). Companies aim that proper supplier selection would help to reduce product and material costs while maintaining a high level of quality and after-sales services (Sonmez, 2006). Therefore, an efficient supplier selection process needs to be in place for the successful supply chain management.

Besides, supplier selection is a crucial purchasing activity for many firms as it could improve on the firm's resources and core competencies (Hsu, Kannan, Leong and Tan, 2006). The importance of purchasing and materials management has been agreed by the top management of Honda of America and Daimler-Chrysler in order to focus on their core competencies. Hence, these organizations rely heavily on their suppliers to sustain competitive advantage and improved performance.

While there was an extensive importance of supplier selection presented, supplier involvement can also lead to better supplier performance, improved manufacturing, products and process advancements that enhance the customer satisfaction and firm performance (Tracey and Vonderembse, 2000). Relative benefits can be gained through the involvement of suppliers on product development and continuous improvement teams. As such, both supplier selection and involvement have inserted a positive impact on the supplier performance and buying firm's performance (Kannan and Tan, 2002). In summary, to sustain effective and reliable sources of suppliers, buyer should select their suppliers carefully and evaluate them regularly.

Early supplier involvement (ESI) has gained its importance in manufacturing sector in developing competitive advantage and to outperform rivals in market share while defending against competitive forces. It is generally known that approximately 80 per cent of the manufacturing cost of a product is determined by the design of the product (Mikkola and Larsen, 2003). Original Equipment Manufacturers (OEMs) today are relying on their approved suppliers to drive efficiencies, heighten visibility, and help them get to market faster. OEM is similar to component integration or value added reselling and specifically refers to those manufacturers who are re-labeling a product to sell it under their own brand name. By practicing early supplier involvement (ESI), suppliers in approved suppliers list (ASL) will work closely together with manufacturers (customers) in sharing information, technological capabilities, knowledge, technical skills and experience.

In numerous industries, shorter product life cycles and increased competition have raised the level of interest in the management of new product development (NPD) processes. Many firms are looking for ways to decrease concept to customer development time and, improve quality and significantly reduce the cost of the resulting product simultaneously. One approach which many companies are taking is to involve material suppliers earlier in the design process. According to Monczka, *et. al.* (1997), supplier involvement ranges from simple consultation on design ideas to making suppliers fully responsible for the design of components, systems, processes, or services they will supply.

Early supplier involvement (ESI) has been advocated as a means of integrating suppliers' capabilities in the buying firm's supply chain system and operations. Partnerships with suppliers were formed together to take advantage of their technological expertise in designing and manufacturing (Dowlatshahi, 1998). The implementation of early supplier involvement (ESI) in these manufacturing sectors focusing on electrics and electronics industries is one of the strategies that companies should acquire to face the challenges in globalizations. In addition, nowadays, designing the relationship between customers and suppliers is very important and essential to sustain competitiveness within the marketplace. Liker, *et. al.* (1998), leading companies need more specific guidance in defining the optimal timing and integration of suppliers.

Early supplier involvement is beneficial to both suppliers and buyers. Benefits of ESI practices include reduced development costs, early availability of prototypes, standardization of components, visibility of the cost performance trade-off, consistency between design and supplier's process capabilities, reduced engineering changes, higher quality with defects, consistency between product tolerances and process capabilities, refinement of the supplier's processes, availability of detailed process data, reduced time to market, early identification of technical problems, reduced supplier's engineering time, acquisition of supplier's production capacity and supplier innovation (Bonaccorsi and Lipparini, 1994).

#### **6.5. Supplier relationship management and procurement performance**

In today's competitive market, companies must focus scarce resources on the strategies most likely to yield success to their organization. Supplier relationships have become increasingly important in assuring this success. Outsourcing has become a common and profitable phenomenon and therefore, necessitates a more critical and comprehensive understanding of the buyer / supplier relationship (Berkowitz, 2004).

SCM and related strategies are crucially important to the success of a manufacturing firm. This is because the cost and quality of goods and services sold are directly related to the cost and quality of goods and services purchased. Therefore, supply chain policies such as procurement and supplier selection have an important role in the SCM. Lean practices to improve the internal processes of an organization in line with the principles of just in time (JIT)

supply are other highly recognized practices in SCM (Burgess et al., 2006; Cigolini et al., 2004).

Supplier relationship management is the process that defines how a company interacts with its suppliers. As the name suggests, this is a mirror image of customer relationship management (CRM). Just as a company needs to develop relationships with its customers, it also needs to foster relationships with its suppliers. The desired outcome is a win-win relationship where both parties benefit.” (Supply Chain Management Institute, 2008, July) “SRM is understood as the sourcing policy-based design of strategic and operational procurement processes as well as the configuration of the supplier management.” (W. Appelfeller, and W. Buchholz, 2005)

Integration of internal processes of the organization with the suppliers and customers forms the essence of the whole idea behind SCM. With the widespread use of internet, web-based systems enable organizations to form strong customer and supplier integration for inventory management, demand forecasting, customer and supplier relationship management (Frohlich and Westbrook, 2002). Strategic suppliers/vendors are defined as those that provide high value, high complexity goods or services. The nature of managing successful strategic supplier relationships requires both client and supplier staff to collaborate on developing ideas that will ultimately grow into innovation and proactivity. It’s not simply about the supplier delivering hard tangibles to the requirements of the client. By disregarding measurement of the qualitative component in the relationship, buyers lose the ability to gain a meaningful competitive advantage.

The descriptions of relationships are relatively abstract and vary with the discipline from which they are being researched (e.g. strategy, economics or psychology). As soon as two or more parties (i.e. organizations) associate themselves in order to fulfill a mutual business purpose a relationship is established. Such an association leads to various joint activities, which are dependent on the specific business objective. Buyer-supplier relationships are classified as- adversarial arm’s-length approach and partnerships approach (Ellram, L.M. 1991). The difference between, traditional arm’s-length relationships and partnerships is clear partnerships are closer than other types of relationship. Relationships are seen as having positive links to performance but little is known about the nature of this performance. Relationships themselves can be seen as generic; applying to all buyer-supplier exchanges. Relationships are viewed as mutual, two-way, involved exchanges between buyers and suppliers. It is apposite, therefore, to bring a relationship performance viewpoint to this key nexus of a firm’s operation.

For more than a decade, there has been a large and growing interest, among academics and practitioners alike, in the value of effective supply chain management (SCM) practices. The literature suggests that a move towards to a close relationship between suppliers and customers is mutually beneficial for both parties. This notion has been widely accepted among original equipment manufacturers (OEMs) in the U.S. As a result, the leading OEMs have reduced their supplier base in recent years and reportedly developed closer relationships with a selected few in the

form of strategic alliances or partnerships (Johnston et al. 2004).

Buyer supplier relationships are commonly evaluated as supply base reduction, communication and long-term relationship (Buvil & Haugland, 2005). Supplier relationship management (SRM), a subset of supply chain management, is concerned with understanding who your most important suppliers are and how you can focus your time and energy on creating and maintaining more effective strategic relationships with them.

An effective SRM solution contains essential components such as ranking, rating and optimization that allow a firm to reduce its supply base and overall costs. Ultimately, an effective SRM solution gives an organization a complete edge by allowing it to; reduce direct and indirect costs and improve bottom –line profitability, understand what is being bought and from whom, minimize the risk of supply chain disruption, select the best supplies to again advantage over competitors, streamline the supply – chain management process by collaborating with business units across the enterprise and assuring that the organization’s Resources are prioritized on the most critical suppliers. Performance on the other hand is how efficient and effective supplier relationship management solution help in achieving organizational objectives (Lawer, 2001). Performance is conceptualized as buyer’s purchasing cost, innovation and financial performance, supplier’s operational and strategic performance and dynamic quality performance (Sanders, 2005).

To leverage the purchasing function into a more strategic level the external initiatives, such as supply base optimization and buyer-supplier relationships, may have to be complemented with more internally oriented activities. As the purchasing function has moved away from being a truly cost-saving function (Cousins and Spekman, 2003) a greater focus has been put on how the purchasing strategy fits into the rest of the company’s strategy and activities. This has been referred to as purchasing integration and can be defined as “the integration and alignment of strategic purchasing and goals with that of the firm”.

This requires that purchasing participates in the strategic planning process, that purchasing has access to strategic information and that important purchasing decisions are coordinated with other strategic decisions of the firm (Narasimhan and Das, 2001). This will make it possible for the purchasing manager to regularly ensure that the current activities are aligned with the company’s strategic plans.

## **6.6. Procurement performance**

The need to have coherent methods of performance of the procurement function in public entities, particularly in developing countries, has never been as sound as it is now. Delaying will worsen the already deteriorating performance, loss of professionals, and organizations will continue incurring unnecessary costs. However, it is important that appropriate performances are implemented. It should not be any performance. The issue of basing on financial performance and neglecting or ignoring non-financial performance is not helping the procurement function

because only partial performance is considered (Lardenoije, Van Raaij, & Van Weele, 2005).

With recent developments in purchasing, it is significant that what is measured is not only important to the entity/organization but should also cover all core areas and activities of procurement (Department of Public Works, Queensland Government, 2006). Though purchasing performance may mean different things to different people (CIPS Australia, 2005), its focus on financial and non-financial benefits, efficiency of procedures, and effectiveness, and ability to establish a range of measures to evaluate procurement activities, is noticed by many (Department of Public Works, Queensland Government, 2006).

Organizations which do not have performance means in their processes, procedures, and plans experience lower performance and higher customer dissatisfaction and employee turnover (Artley & Stroh, 2001, Amaratunga & Baldry, 2002 and CIPS Australia, 2005). Measuring the performance of the purchasing function yields benefits to organizations such as cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage as was noted by Batenburg & Versendaal (2006). A downturn, when companies must consider every avenue for cutting costs in order to simply survive, the procurement department plays an increasingly important role in achieving this strategic goal. A purchasing performance figure benchmarks the target achievement within the organization while functioning at the same time as a key performance indicator for the control and allocation of liquidity respectively assets (Arthur, 2009).

## 7. Empirical Framework

Framework agreements are arrangements with suppliers that set out the terms and conditions (particularly price and quality) of contracts to be awarded during a specified period. Where there are a number of suppliers there are two possible options for awarding a contract dependent on how the Framework was set up and the requirements of the individual contract. First, the Authority can award the contract without reopening competition. Secondly, the contract can be awarded through a mini-competition with all the suppliers within the Framework capable of meeting the particular need. (According to Framework Agreement guidance, 2009).

Only where the terms laid down in the Framework Agreements are sufficiently precise to be able to identify the best supplier for the particular requirement and whether the Authority can award the contract without reopening competition. The Authority should outline in the terms of the Framework Agreement under which circumstances they envisage making a single tender award and how they would select the supplier. This may be by adopting initial ranking of the suppliers on the basis of the award criteria used at the time that the Framework was established. Information should also be provided as to how they would select a subsequent supplier if the first was unable to deliver the requirement. In the case of social research, it is likely to be rare that the precise requirements for an individual research project have been adequately addressed in the set-up of the

Framework. Therefore the use of mini-competitions is likely to be the most appropriate route in the case of social research procurement (Framework Agreement guidance, 2009).

Where the terms laid down in the Framework Agreement are not sufficiently precise or complete enough to award a contract to a particular supplier, a mini-competition (in writing) should be held with all the suppliers within the Framework capable of meeting the particular need. This does not necessarily mean that every provider on the Framework must be included. A Framework may cover a number of different suppliers or services and there is no obligation to consult those providers that had not agreed, when bidding for appointment to the Framework, to provide the particular supplies or services that are the subject of the call-off. However, most established Frameworks which cover social research have divided their requirements into distinct categories, referred to as lots, usually by topic or method, or sometimes by both. In this case, the Authority need only ask the suppliers in the particular lot (or lots) that cover the services required to bid. However, all suppliers in the lot must be invited to tender as by definition all were selected on their ability to provide the services covered by the lot. So, for example, commissioners wanting to let a large-scale survey would be able to go to a particular lot containing survey specialists and run a mini-competition within that lot (Framework Agreement guidance, 2009).

## 8. Research Gaps

The Public Procurement Oversight Authority (PPOA) has observed that there is rampant use of the Request for Quotations (RFQ) Method by procuring entities in most of their procurements. Further, procurement units pre-occupy about 90% of their time in processing procurements through the aforesaid method. There have been various attempts to reduce procurement costs among various companies. One of the measures to reduce procurement costs that has been adopted in the recent past is framework contracting (Wittig A. 2002). This technique of procuring goods has not been adequately researched as most publications are either journals or documentary guidelines. In addition, the strategy has not been adopted by various organizations despite its proven results in reducing total procurement costs especially in supplier selection and award of contract. This study therefore tends to fill the gap analyzing the factors affecting the implementation of framework contracting.

## 9. Research Methodology

The study adopted a descriptive cross sectional survey design to assess the influence of framework contracting on procurement performance of Geothermal Development Company Limited.

The target population in this study was population of 127 employees attached to procurement, administration and finance departments. The distribution of the target population was as shown in the sample frame table below;

**Table 1:** Population Distribution Table

Branch	Procurement	Administration	Finance	Population
Nairobi	18	23	7	48
Central Rift	21	32	13	66
South Rift	3	8	2	13
TOTAL	42	63	22	127

## 9.1 Sample and Sampling Technique

### 9.1.1 Sampling frame

According to (Kothari, 2004), sampling frame consists of a list of items from which the sample is to be drawn.

**Table 2:** Sampling Frame

Branch	Population	Population %
Nairobi	42	33
Central Rift	63	49
South Rift	22	18
TOTAL	127	100

A sample is a smaller (but hopefully representative) collection of units from a population used to determine truths about that population (Field, 2005). A stratified random sampling method was used to obtain the respondents for this study. This system of sampling allowed every unit of the sampling frame to have an equal chance while enabling the study to capture key population characteristic in the sample. The application of stratified sampling was evidenced in the grouping of target population according to the department in which they were attached.

### 9.1.2 Sample Size Determination

The sample size was determined using widely researched and applied formula. Since the target population  $N$  is known, the study adopted the formula of Israel, (1992) as shown in the equation 1, to determine the sample size,  $n$ , of case study respondents:

$$n = \left( \frac{N}{1 + N(e)^2} \right)$$

where  $n$  is the optimum sample size,  $N$  the target population (i.e. the total number of employees within the respective departments) at GDC,  $e$  the probability of error (i.e. the desired precision e.g. 0.05 for 95% confidence level.)  $n$  was approximately 96 as derived in the equation 2 below:

$$n = \left( \frac{127}{1 + 127(0.05)^2} \right) = \frac{127}{1.318} = 96$$

The distribution of sample size according to population characteristics was as follows;

**Table 3:** Sampling Distribution Table

Branch	Population	Percentage %	Sample Size
Nairobi	42	33	32
Central Rift	63	50	48
South Rift	22	17	16
TOTAL	127	100	96

### 9.1.3 Sampling Procedure

The study employed a probabilistic sample through the use of stratified random sampling followed by a simple random sampling on its sample size, since the population of interest was found in different departments of GDC and is thus heterogeneous. Employing this technique enabled the

researcher to derive a more representative and accurate sample of the various sub-populations (Cooper & Schindler 2000).

## 9.2 Research Instruments

The study was conducted using primary data which was collected using questionnaires. (Mugenda & Mugenda, 2003) states that questionnaires are fast, cheap and can be self-administered besides being good for surveys. In addition, this study preferred questionnaires in collecting data since it was capable of enabling the researcher to obtain adequate and detailed information on the influence of framework contracting on procurement performance. The questionnaires contained closed ended questions to enable respondents easily provide adequate information necessary for the success of the study. The questionnaire design made use of the Likert scale to gauge the responses on a scale of one to five.

## 9.3. Pilot Study

### 9.3.1. Validity of Research Instruments

According to Mugenda & Mugenda (2003) validity is the degree to which results obtained from the analysis of the data actually represent the phenomenon under study. Validity of research instrument was established by expert judgment as supported by (Orodho, 2003). This helped in the enhancement of questionnaires thereby promoting the credibility of data that was collected.

### 9.3.2. Reliability of Research Instrument

Reliability refers to the extent to which the data collection techniques or analysis will yield consistent findings (Orodho, 2003). This can be done through for instance a pre-test of the instrument to check on its applicability. This pre testing gave a good picture as to how competent the research instrument is as feedback provided by those in the pre test. The test-retest method was applied to estimate the degree to which the same results can be obtained with a repeated measure of accuracy of the same concept. This helped test the instrument reliability as it also provided a basis for improving the research methodology. A total number of 10 employees attached to procurement, finance and administration departments were targeted who later did not form part of the final study. The reliability test results produced ( $\alpha=0.73$ ) hence the research instrument was adopted for the study.

## 9.4. Data Collection Procedure

The researcher obtained permission through an introduction letter obtained from JKUAT-Nakuru CBD Campus and County government of Nakuru to undertake the study at GDC well on time. The researcher backed by the services of research assistants administered the questionnaires to facilitate the speedy collection of data in a more convenient manner. The questionnaires were distributed to the respondents in various branches and were collected after three working days through drop and pick methods.

### 9.5. Data Analysis and Presentation

Analysis means ordering, categorizing, manipulating and summarizing of data to obtain answers to research questions (Achola, 2007). This study used SPSS version 20 to analyze data. Data collected was be studied, compiled, and systematically analyzed to establish the significant level to which various factors affect the implementation of framework contracting. Descriptive statistics was used where measures of central tendency like mean were calculated and standard deviation which measured the variability of opinions. Presentation of data employed the use of tables, graphs and charts. The significance of the influence of framework contracting on procurement performance were tested using inferential statistics such as regression analysis. The following model applied;

**Model,**

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Where:

Y=Procurement performance

a= Constant

$\beta$ =Beta coefficients

$X_1$ =Technique of framework contracting

$X_2$ =Early Supplier involvement

$X_3$ =Supplier relationship management

e=Error term

### 10. Data Processing and Analysis

The study focused on assessing the influence of framework contracting on procurement performance. It targeted a population of 127 employees attached to procurement, administration and finance departments in all GDC regions. The analysis was conducted using SPSS where findings were generated automatically followed by a critical analysis of the findings.

#### 10.1. Research Findings and Analysis

Majority of the respondents were male as represented by 51%. In this regard, 49% were female respondents. This showed that majority of employees at GDC especially those attached to the procurement, administration and finance departments were men. Further, the findings revealed that there were attempts to achieve gender balance at Geothermal Development Company as evidenced by a substantial population of female employees at the Company. It was also revealed that majority (76%) of employees attached to the procurement, finance and administration departments at GDC were between ages 21-30 years and another section of the respondents 24% were between ages 31-40 years. This further indicated that the employees at GDC are youthful and this can be attributed to the fact that GDC is a recent organization in Kenya Public Sector. In addition, 56% of the respondents were Bachelor's degree graduates, another section of the respondents at 24% were Master's Degree Holder and only 20% of the respondents had diploma qualification. Consequently, 56% of the respondents had worked for a period between 1-5 years as represented by 56%. Some respondents (39%) had worked for a period of 6-10 years and only 5% had worked for unspecified period. The duration of work among respondents could be attributed to the fact that the company has not existed for a long period

and also the age bracket of majority of the company employees which can be evidenced to be youthful in nature.

#### 10.2. Framework Contracting Techniques

The study sought to find out the effect of framework contracting techniques on procurement performance at GDC through successful implementation of framework contracting. The findings were as follows;

**Table 4:** Framework Contracting Techniques

	N	Min.	Max.	Mean	Std. Deviation
Adoption of framework contracting as a strategic procurement technique	82	3	5	4.39	.586
Frequently applied at GDC	82	1	5	3.66	.825
Establish terms of procurement between buyer and supplier	82	2	5	4.29	.782
Framework agreements are considered as legal instruments	82	1	5	4.46	.951
Valid N (list wise)	82				

According to table 4, majority of the respondents agreed (mean=4.39) that framework contracting was adopted as a strategic technique. Further, the standard deviation of 0.586 showed that the opinions of the respondents were less varied and that responses were revolving closer to the mean. In addition, it was also agreed (mean=3.66) by majority of the respondents that framework contracting technique was frequently applied. However, the opinions of the respondents were more varied as evidenced by a standard deviation of 0.825. Consequently, the findings showed that framework contracting technique helped to establish terms of procurement between buyer and supplier as reported by majority of the respondents who agreed (mean=4.29) on the matter. The opinions of the respondents were quite dispersed as indicated by a standard deviation of .782. On the other hand, it was strongly agreed (mean=4.46) that framework agreements were considered as legal instruments in procurement processes.

#### 10.3. Early Supplier involvement

The study sought to establish the role of Early Supplier Involvement in framework contracting on procurement performance. Data was obtained and findings were as follows;

**Table 5: Early Supplier Involvements**

	N	Min	Max	Mean	Std. Deviation
Proper supplier selection help reduce cost	82	4	5	4.78	.419
Involvement of suppliers to promote framework contracting	82	1	5	3.46	1.120
ESI leads to better supplier performance	82	4	5	4.61	.494
ESI leads to better customer satisfaction	82	3	5	4.24	.830
ESI is through continuous improvement teams	82	3	5	4.34	.530
ESI requires sharing information to promote framework contracting	82	4	5	4.71	.461
ESI depends on technical skills and experience	82	2	5	3.63	1.220
Valid N (list wise)	82				

Table 5 established that proper supplier selection helped to reduce cost as strongly agreed (4.78) upon by majority of the respondents. A smaller standard deviation of 0.419 showed that respondents tended to agree on the matter as their opinions seemed converging. In addition, majority of the respondents were uncertain (mean=3.46) whether involvement of suppliers was aimed at promoting framework contracting irrespective of their largely varied opinions ( $\delta=1.12$ ). Consequently, the table revealed that early supplier involvement lead to better supplier involvement as strongly agreed (4.61) upon by majority of the respondents. It was also reported by majority of the respondents that early supplier involvement leads to better supplier satisfaction which enhances the role of procurement. This was reported by a section of the respondents who agreed (4.23) on the matter. The findings also showed that early supplier involvement was achieved at GDC through continuous improvement teams as agreed (4.34) upon by majority of the respondents. On this matter, respondents seemed to have more convergent opinions which showed a better understanding of the matter. Respondents overwhelmingly agreed (mean=4.71) that ESI requires sharing information to promote framework contracting and this was also indicated by a standard deviation of .461. Consequently, the study also established that ESI depends on technical skills and experience. This was revealed by majority of the respondents who agreed (mean=3.63) on the matter. It also evidenced that respondents tended to have greatly varied opinions which as indicated by a standard deviation of 1.22.

In addition to the role of early supplier involvement, respondents were asked to rate the various benefits of early supplier involvement in implementing framework contracting in attempts to enhance procurement performance. The findings were as follows;

**Table 6: Benefits of Early Supplier Involvement**

	N	Min	Max	Mean	Std. Deviation
Integrate supplier capabilities	82	3	5	4.51	.597
Reduce development costs	82	4	5	4.39	6.200
Standardization of components	82	2	5	4.68	.650
Visibility of cost performance trade off	82	3	5	4.34	.693
Consistency between design and supplier's process capabilities	82	3	5	4.54	.636
Early identification of technical problems	82	3	5	4.59	.591
Acquisition of suppliers production capacity and supplier innovation	82	4	5	4.24	.435
Valid N (list wise)	82				

Table 6 presented the respondents perception on the benefits of early supplier involvement towards enhancing procurement performance through successful implementation of framework contracting. The findings showed that among the respondents, majority strongly agreed (mean=4.51) that early supplier involvement help to integrate supplier capabilities. It was also revealed that early supplier development reduce development costs as reported by majority of the respondents who agreed (mean=4.39) on the matter. Table 4.5 also reported that early supplier involvement enhances standardization of components which is a key enabler of framework contracting. Further, ESI promotes visibility of cost performance trade off as agreed (4.34) upon by majority of the respondents. The findings also showed that majority of the respondents strongly agreed that ESI promotes consistency between design and supplier's process capabilities. This was indicated by a mean of 4.54. Consequently, the results revealed that ESI helped in early identification of technical problems as reported by majority of the respondents who strongly agreed (4.59) on the issue. It was also agreed (mean=4.24) upon that ESI leads to acquisition of suppliers production capacity and supplier innovation which enhances implementation of framework contracting and thereby promoting procurement performance

#### 10.4. Supplier Relationship Management

The study investigated the effect of supplier relationship management on successful implementation of framework contracting; the findings were analyzed as follows;

**Table 7: Supplier Relationship Management**

	N	Min	Max	Mean	Std. Deviation
Relations are mutual exchanges between buyers and suppliers	82	3	5	4.37	.536
SRM provides interaction between buyer and supplier	82	4	5	4.27	.617
SRM requires continuous collaboration between the buyer and supplier	82	3	5	4.51	.597
SRM enhances procurement performance	82	3	5	4.59	.631
SRM helps reduce supplier base and overall cost	82	3	5	4.05	.773
Valid N (list wise)	82				

According to table 7, majority of the respondents agreed (mean=4.37) that relations in procurement involves mutual exchanges between buyers and suppliers. On this point, respondents tended to have converging opinions. It was also agreed (mean=4.27) that supplier relationship management provides interaction between buyer and supplier and respondents' opinions were not widely spread as indicated by a standard deviation of 0.617. The study findings also showed that majority of the respondents strongly agreed (mean=4.51) that SRM requires continuous collaboration between the buyer and supplier to facilitate implementation of framework contracting. With a standard deviation of 0.597, the respondents' opinions were not widely spread from one another. It was reported by majority of the respondents that SRM enhances procurement performance as indicated by a mean of 4.59 and a standard deviation of 0.631. Majority of the respondents also agreed (mean=4.05) that SRM helps reduce supplier base and overall cost which promotes procurement performance.

**Table 8: Procurement Performance**

	N	Min	Max	Mean	Std. Deviation
Procurement performance is measured in regard to the role framework	82	1	5	4.10	.480
Measuring performance aims at improving customer's satisfaction	82	3	5	4.66	.530
Implementing framework contracting has reduce cost	82	2	5	4.39	.833
Successful implementation of framework contracting can improve quality	82	3	5	4.39	.703
Framework contracting has improved assurance on competitive advantage	82	3	5	4.41	.670
Valid N (list wise)	82				

Table 8 presented findings on successful implementation of framework contracting and procurement performance. It was agreed (mean=4.10) by responds that procurement performance at GDC was measured with regard to the role of framework contracting and a smaller standard deviation (0.480) showed their agreement on the matter. It was also strongly agreed upon by majority of the respondents that measuring performance aimed at improving customer satisfaction as indicated by a mean of 4.66. Consequently, a standard deviation of 0.530 showed that there was just a small variation in the respondents' opinions on the matter. Respondents at GDC agreed (mean=4.39) that implementing framework contracting has reduced cost thereby promoting procurement performance in the Company however the opinion were largely divergent as indicated by a standard deviation of .833. In attempts to improve procurement performance, it was agreed (mean=4.39) upon by majority of the respondents that successful implementation of framework contracting can improve quality. On the other hand, a standard deviation of .703 showed that the opinions of the respondents on the matter were widely spread despite majority agreeing on the issue. Further, it was agreed upon by majority of the respondents that Framework contracting has improved assurance on competitive advantage. This was indicated a mean of 4.41 and standard deviation of 0.670.

### 10.5. Inferential Results

Inferential analysis was conducted to assess the relationship between the various variables under study. In this case, Karl Pearson Correlation Coefficient was used to study the relationship between variables under framework contracting and procurement performance and the findings were as follows;

**Table 9: Framework Contracting Techniques on Procurement Performance**

		Framework contracting techniques	Procurement Performance
Framework contracting techniques	Pearson Correlation	1	.357
	Sig. (2-tailed)		.021
	N	82	82
Procurement Performance	Pearson Correlation	.357	1
	Sig. (2-tailed)	.021	
	N	82	82

According to table 9, framework contracting techniques had an r-value of .357 indicating a significant relationship between framework contracting techniques and procurement performance. This was satisfactory to the first objective of the study. In addition, the relationship between framework contracting techniques and procurement performance was positive. Therefore framework contracting techniques is positively correlated with procurement performance at Geothermal Development Company.

**Table 10: ESI and implementation of framework contracting**

		Early supplier involvement	Procurement performance
Early supplier involvement	Pearson Correlation	1	.404**
	Sig. (2-tailed)		.002
	N	82	82
Procurement Performance	Pearson Correlation	.404**	1
	Sig. (2-tailed)	.002	
	N	82	82

According to table 10, early supplier involvement had an r-value of .404 indicating a significant relationship between early supplier involvement and successful implementation of framework contracting hence procurement performance. This was satisfactory to the second objective of the study. In addition, the relationship between early supplier involvement and successful implementation of framework contracting was positive. Therefore early supplier involvement and successful implementation of framework contracting are positively correlated Geothermal Development Company.

**Table 11: SRM and implementation of framework contracting**

		Supplier relationship management	Procurement Performance
Supplier relationship management	Pearson Correlation	1	.681**
	Sig. (2-tailed)		.000
	N	82	82
Procurement Performance	Pearson Correlation	.681**	1
	Sig. (2-tailed)	.000	
	N	82	82

\*\*Correlation is significant at the 0.01 level (2-tailed).

According to table 11, supplier relationship management had an r-value of .618 indicating a significant relationship between supplier relationship management and procurement performance. This was satisfactory to the fourth objective of the study. In addition, the relationship between supplier relationship management and procurement performance was positive. Therefore supplier relationship management is positively correlated with procurement performance regarding successful implementation of framework contracting technique.

#### 4.6 Regression Analysis

The following section contains inferential results aimed at presented findings on the relationship between the independent variables and the dependent variable. It assesses the pooled effect of the various independent variables on the dependent variable.

**Table 12: Regression Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.729 <sup>a</sup>	.531	.495	0.90557

a. Predictors: (Constant), framework contracting techniques, ESI, SRM

The results in Table 12 show that the value obtained for R, which is the model correlation coefficient was  $r = 0.729$

**Table 14: Coefficients of Estimates**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	5.263	3.971		1.325	.191
Framework technique	.113	.137	.085	.829	.028
ESI	.375	.142	.344	2.647	.011
SRM	.675	.107	.664	6.302	.000

a. Dependent Variable: Procurement Performance

The results in Table 14 indicated that the most important factor affecting the implementation of framework contracting was supplier relationship management ( $\beta = 0.675$ ) followed by Early supplier involvement (0.375), and framework contracting techniques in that order respectively. This indicated that the dependent variable, that is, the implementation of framework contracting would change by a corresponding number of standard deviations when the respective independent variables change by one standard deviation. Therefore, the factors are seen to significantly influence the implementation of framework contracting at Geothermal Development Company. The fitted regression line is as follows;

$$Y = 5 + 0.113X_1 + 0.375X_2 + 0.675X_3$$

Where  $X_1$ ,  $X_2$ ,  $X_3$ , are framework contracting techniques, early supplier involvement and, Supplier Relationship Management.

## 11. Summary, Conclusions and Recommendations

### 11.1. Summary

The findings of the study established that framework contracting was adopted as a strategic technique at Geothermal Development Company and was frequently applied. This was reported by majority of the respondents.

which was higher than any zero order value in the table. This indicates that the model improved when more variables were incorporated when trying to analyze the factors affecting the implementation of framework contracting. The adjusted r-square value of,  $r = 0.495$ , also indicated that the multiple linear regression model could explain for approximately 50% of the variations in the implementation of framework contracting at Geothermal Development Company.

**Table 13: ANOVA test results**

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	236.771	4	59.193	14.716	.000 <sup>b</sup>
Residual	209.159	52	4.022		
Total	445.930	56			

a. Dependent Variable: procurement performance  
b. Predictors: (Constant), framework contracting techniques, ESI, SRM

ANOVA test was conducted to test the significance level of the entire model. The significance value 0.000 was obtained. Since the value was less than 0.05, it was concluded that framework contracting techniques, ESI, and SRM jointly have significant effect on implementation of framework contracting hence procurement performance at Geothermal Development Company. The findings are shown in table 13.

Consequently, the findings showed that framework contracting technique helped to establish terms of procurement between buyer and supplier as reported by majority of the respondents. Further, it was strongly agreed by majority of the respondents that framework agreements were considered as legal instruments in procurement processes.

The study established that proper supplier selection helped to reduce cost as strongly agreed upon by majority of the respondents. A smaller standard deviation of 0.419 showed that respondents tended to agree on the matter as their opinions seemed converging. In addition, majority of the respondents were uncertain (mean=3.46) whether involvement of suppliers was aimed at promoting framework contracting irrespective of their largely varied opinions ( $\delta=1.12$ ). Consequently, the table revealed that early supplier involvement led to better supplier involvement as strongly agreed upon by majority of the respondents. It was also reported by majority of the respondents that early supplier involvement leads to better supplier satisfaction which enhances the role of procurement. The findings further showed that early supplier involvement was achieved at GDC through continuous improvement teams as agreed upon by majority of the respondents. On this matter, respondents seemed to have more convergent opinions which showed a better

understanding of the matter. Respondents overwhelmingly agreed that ESI requires sharing information to promote framework contracting. Consequently, the study also established that ESI depends on technical skills and experience.

On the benefits of early supplier involvement towards enhancing procurement performance through successful implementation of framework contracting, respondents had varied opinions. The findings showed that among the respondents, majority strongly agreed that early supplier involvement help to integrate supplier capabilities. It was also revealed that early supplier development reduce development costs. It was further reported that early supplier involvement enhances standardization of components which is a key enabler of framework contracting. Further, ESI promotes visibility of cost performance trade off as agreed upon by majority of the respondents. The findings also showed that majority of the respondents strongly agreed that ESI promotes consistency between design and supplier's process capabilities. Consequently, the results revealed that ESI helped in early identification of technical problems as reported by majority of the respondents who strongly agreed on the issue. It was also reported that ESI leads to acquisition of suppliers' production capacity and supplier innovation which enhances implementation of framework contracting and thereby promoting procurement performance.

According to the findings of the study, majority of the respondents agreed that relations in procurement involve mutual exchanges between buyers and suppliers. On this point, respondents tended to have converging opinions. It was also established that supplier relationship management provides interaction between buyer and supplier and respondents' opinions were not widely spread as indicated by a standard deviation of 0.617. The study findings also showed that SRM requires continuous collaboration between the buyer and supplier to facilitate implementation of framework contracting. It was further reported by majority of the respondents that SRM enhances procurement performance and that SRM helps reduce supplier base and overall cost which promotes procurement performance.

The research established that procurement performance at GDC was measured with regard to the role of framework contracting. It was also strongly agreed upon by majority of the respondents that measuring performance aimed at improving customer satisfaction. Consequently, respondents at GDC agreed that implementing framework contracting has reduced cost thereby promoting procurement performance in the Company however the opinion were largely divergent as indicated by a larger standard deviation. In attempts to improve procurement performance, it was reported that successful implementation of framework contracting can improve quality. Further, it was agreed upon by majority of the respondents that Framework contracting has improved assurance on competitive advantage.

## 11.2. Conclusions

Based on the study findings, there was a relationship between framework contracting techniques and procurement performance ( $r=0.357$ ). This finding led to the conclusion

that framework contracting was adopted as a strategic technique at Geothermal Development Company and was frequently applied. This was reported by majority of the respondents. These findings were consistent with (Arnek, 2004) who reported that framework Contracting was adopted to reduce purchase costs thereby providing competitive advantage. Consequently, the findings concluded that framework contracting technique helped to establish terms of procurement between buyer and supplier as reported by majority of the respondents. Further, it was concluded that framework agreements were considered as legal instruments in procurement processes at GDC.

It was also concluded that there is a significant positive relationship between early supplier involvement and procurement performance at GDC as indicated by an r-value of 0.404. This conclusion was supported by the fact that proper supplier selection helped to reduce cost as strongly upon by majority of the respondents, a view perceived by (Sonmez, 2006). In addition, majority of the respondents were uncertain irrespective of their largely varied opinions. It was also concluded that early supplier involvement leads to better supplier satisfaction which enhances the role of procurement and that early supplier involvement would be achieved through continuous improvement teams as agreed upon by majority of the respondents. Further conclusions were made that ESI requires sharing information to promote framework contracting.

There were various benefits that were attributed to ESI. The study concluded on the various benefits of ESI such as, that early supplier involvement help to integrate supplier capabilities; reduces development costs; enhances standardization of components which is a key enabler of framework contracting. Further, ESI promotes visibility of cost performance trade off Consequently, the results led to the conclusion that ESI helped in early identification of technical problems as reported by majority of the respondents who strongly agreed on the issue. It was also concluded that ESI leads to acquisition of suppliers' production capacity and supplier innovation which enhances implementation of framework contracting and thereby promoting procurement performance.

The findings showed that supplier relationship management had a strong positive relationship with procurement performance ( $r=0.681$ ). According to the findings of the study, it was concluded that relations in procurement involve mutual exchanges between buyers and suppliers. It was also concluded that supplier relationship management provides interaction between buyer and supplier. The study further concluded that SRM requires continuous collaboration between the buyer and supplier to facilitate implementation of framework contracting. In addition, procurement performance was enhanced through SRM and that that SRM helps reduce supplier base and overall cost which promotes procurement performance. These findings were also shared by Johnston, et al, 2004 who reported that supplier relationship management requires both client and supplier staff collaboration in procurement activities for the success of framework contracting.

The study findings led to the conclusion that procurement performance at GDC was measured with regard to the role

of framework contracting. In this regard, measuring performance aimed at improving customer satisfaction. Consequently, it was concluded that implementing framework contracting has reduced cost thereby promoting procurement performance in the Company. In attempts to improve procurement performance, it was concluded that successful implementation of framework contracting can improve quality.

### 11.3. Recommendations

Framework contracting is a strategy that can greatly reduce procurement costs thereby enhancing procurement performance. The study recommends that awareness is created among procurement professional not only at GDC but should also be extended to other public Corporations to cut on procurement expenditures. This requires that employees of such Corporations are equipped with adequate training on the workability of framework Contracting Technique and issues surrounding its implementation. Further framework Contracting can significantly reduce lead time in the procurement processes hence the recommendation for its adoption in procurement procedures.

In attempts to successfully implement framework contracting, there is greater need for early supplier involvement especially where capital projects are involved as witnessed in the case of GDC. This enhances the capacity of the supplier to effectively deliver to the respective orders under consideration.

In addition, the study recommends that elaborate plans and measures should be formulated to promote buyer supplier relationships regarding its critical role in enabling the success of framework Contracting. This can be achieved by creating collaborative relationships between the buyer and supplier to promote mutual understanding between the parties.

#### 11.3.1. Suggestion for further studies

Literature on framework contracting as a procurement strategy is limited which calls for more researchers to conduct studies on related area. This study covered a public corporation and therefore more research can be done in the private sector.

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