KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,

KUMASI

COLLEGE OF ART AND BUILT ENVIRONMENT

DEPARTMENT OF BUILDING TECHNOLOGY

THE ROLE OF VALUE MANAGEMENT IN SOLE SOURCING METHOD OF

PROCUREMENT

A CASE STUDY OF GHANA HIGHWAY AUTHORITY (GHA)

RAYMOND OWUSU-NANAH

(PG 1772414)

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DECLARATION

I hereby declare that this submission is my own work towards the award of MSc Procurement Management and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

RAYMOND OWUSU – NANAH   ……………………..   ………………

(Student)   Signature   Date

Certified by:

DR. GABRIEL NANI   …………………….   ……………….

(Supervisor)   Signature   Date

Certified by:

DR. B.K. BAIDEN   ………………………   ……………….

(Head of Department)   Signature   Date

DEDICATION

This work is dedicated first and foremost to the Almighty God whose help has purely brought me to this level, my dearest wife Abigail and my three wonderful children, Micha, Papa and Paa for their support. Special dedication to my mother.

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ABSTRACT

Value management is critical to cost saving in construction and other industries. However, the subject matter has hardly been linked with procurement, especially sole source procurement. This study therefore sought to investigate this issues with the Ghana Highway Authority as the case study. The researcher sought to identify the aspects of sole source procurement method that impedes the achievement of value for money as well as identify value management (VM) principles that could be applied to procurement. In addition, the study determined the VM principles that could promote value for money in sole source procurement process and identify and rank the challenges in integrating VM principles in sole sourcing in public procurement. The study was designed as a quantitative survey with questionnaire as the main tool in data gathering. Data was collected from a sample of 61, with 56 (representing 91.8%) recovered. It was concluded that though GHA knows about VM, it implements only three out of its several components, which are 'having a job plan ', 'pre-study analyses and 'implementation analyses. It was further concluded that VM is not effectively practiced in GHA's 'sole source procurement. The variables that impedes the practice of VM towards enhancing GHA's operational efficiency and getting value-for-money were the absence of a national or international competitive tender, lack of competition, purchasing of urgently needed goods and the lack of planned, budgeted bids. These challenges implies respondents' preference for the other sourcing methods as those where value management could be better practiced, relative to sole source procurement. Other pressing challenges faced in integrating VM in GHA's sole source procurement are the lack of management support in implementation of value management, the poor understanding of the VM methodology, lack of trained independent facilitators, inadequate time to go through the VM processes in sole source procurement and the lack of motivation to even do so. The study recommended that GHA managers should show by

action and words that they are interested in the implementation of VM in all procurement activities of the institution and also institute training programmes designed to educate and equip their employees on the VM principles and factors towards equipping them for the eventual implementation of VM in GHA operations.

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LIST OF ACRONYMS/ABBREVIATIONS

FAST   -   Function Analysis Technique

GDP   -   Gross Domestic Product

GEC   -   General Electric Company

GHA   -   Ghana Highway Authority

ICT   -   International Competitive Tendering

LCS   -   Least Cost Selection

NCT   -   National Competitive Tendering

OECD   -   Organization for Economic Cooperation and Development

PPA   -   Public Procurement Act

RFQ   -   Request for Quotations

QBS   -   Quality Based Selection

QCBS   -   Quality and Cost Based selection

SBCQ   -   Selection Based on Consultant's Qualification

SFB   -   Selection under Fixed Budget

SSS   -   Sole Source Selection

SWOT   -   Strengths Weaknesses Opportunities and Threats

UK   -   United Kingdom

USA   -   United States of America

VA   -   Value Analysis

VE   -   Value Engineering

VM   -   Value Management

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

According to the European Commission (2007), the prevalence of inefficiencies, collusion and corruption is prevalent in the public procurement sector is due to the quantum of resources involved in the processes. The Commission noted that £150 billion is spent procuring goods and services in the UK alone. Considering that the UK is a small component of the global commerce, one can easily understand the staggering resources associated with the sector, hence its reputation is a hotspot for criminals. The Organization for Economic Cooperation and Development (OEDC) attested to the sheer quantum of resources when they reported in 1998 that approximately US$2,000 billion was spent by its governments on procurement.

Citing the Transparency International, Almeida (2007) argued that, sector inefficiencies and corruption in public procurement activities alone accounts for approximately 3% to 10% of global Gross Domestic Product (GDP) and reduces growth by 2%. Almeida claimed that the corruption and inefficiency is further entrenched through the lack of transparency and subjectivity permitted by closed doors traditional tendering methods, which constitutes one of the main area of inefficiency in public spending. They especially noted the role of sole source and the abuse associated with the closed door procurement system.

It is important to emphasise at this point that, there are several procurement procedures and methods that are embarked on as a result of the threshold involved

and the circumstances surrounding the procurement. Out of the various methods, it's been observed that sole sourcing is particularly subject to abuse (Kotoka, 2012). The abuse has widely occurred because this aspect of procurement is subject to a single supplier without competition (direct procurement) which takes out the thoroughness needed to ensure the organisation gets value for money in situations where the contract is competitively bided.

In the bid to control this rampant act of collusion, corruption and inefficiencies, the legislative assembly of Ghana enacted the Procurement Act of Ghana, Act 663 (2003) and followed this up by setting up the Public Procurement Authority (PPA) (Dabaga, 2013). However, these measures have not been as effective as expected as proven by empirical findings made by Kotoka (2012), Verhage (2002) and Dabaga (2013) in controlling corruption in the general procurement process and in sole sourcing procurement in particular. Though it's been stipulated that sole sourcing is supposed to be done under very specific conditions, the PPA's 2008/09 Annual Report cited by Kotoka (2012) observed that as much as 318 out of 342 sole sourcing applications were approved while 323 out of 360 applications were approved in 2009. Though due diligence might have been necessarily done in the procurements listed above, it does not negate the fact that its number is on the rise in spite of the suggestions to use this method advisedly and made more of an exception, rather than the rule on public procurement (Kotoka, 2012).

This has left many policy makers scratching their head for solution to the hydra-headed problems associated with sole sourcing, which brings in the concept of Value management (VM) as one of the potential solution that thoroughly tackles the

challenges of waste and inefficiency associated with this practice. The confidence that VM can make a difference in the sole sourcing aspect of public procurement is evidenced in the concept being classified as a methodological management style for enhancing value in projects. Value Management takes the conceptual thinking on each project by considering its historical and international dimensions in a value chain that intricately involve the utilisation of the value engineering or value management principles (Alazemi, 2011; Male *et al.,* 2007).

Value management has historically been a medium of avoiding unnecessary cost and using little to achieve much. Almeida (2007) and Leeuw (2001) confirmed that VM is an organized approach to identify and discard unwanted cost that does not add use, life, quality, aesthetics nor relevant customer features to a project. He also noted that VM represents a systematic as well as a multi-disciplinary effort targeted at understanding the functions of projects to achieve optimal value at the lowest overall life cycle project cost. Similarly, Alazemi (2011) asserted that VM is an orderly approach designed to achieve necessary or relevant organistional function for minimum cost without compromising quality, delivery, performance or reliability. Asdonk (2014) noted that VM has both proactive and reactive uses which results in durable and achievable solutions that fulfill the needs of organizations and its stakeholders (Asdonk, 2014). Citing the European Governing Board (2014), Asdonk further noted that VM as a service uses a team-based, structural, creative and analytical approach to solve a value problem (which largely represents its reactive use) or improve value-for-money in a project (which largely represents its pro-active use) (European Governing Board, 2014).

Leeuw (2001) also clarified that VM promotes adaptability/flexibility in construction works, ensures value-for-money (VFM) for clients, enhances competitive edge and generally lead to quality performance in construction projects. Thus, the relationship between ensuring VFM in construction projects and VM is beyond doubt, though the same could not be argued for value management and procurement (Schrijver, 2009). Asdonk (2014) argues that VM sometimes promises more than it delivers, especially judging from the gap between actual and potential benefits, even in the sectors where it is popularly applied. The author however acknowledged that the successful implementation of VM strategies are self-evident as application leads to tangible results in achievable solutions.

1.2 Problem Statement

A huge chunk of global resources are spent on procurement, which ultimately makes the sector attractive to criminal and saboteurs who profit from the collusion, inefficiency and corruption associated with the process (Almeida, 2007; European Commission, 2007). In fact, it is estimated that Sub-Saharan Africa along spends between US$30 to US$43 billion in procurement with the developed world also spending a whopping 10% of GDP on public procurement (Wittig, 1999; Trionfetti, 2003). Consequently, all countries, notwithstanding their designation, needs a well-functioning public procurement system to maximize resources and reduce waste. With Malawi and Uganda, for instance, spending 40% and 70% of their total expenditure on procurement, the need to ensure efficiency in public procurement is quite germane, if not critical for developing countries (Development Assistance Committee, 2005), especially with respect to sole or sole source aspect of procurement.

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Though several empirical studies have focused on measures to improve procurement (Ahmed and Mahmood, 2010; Anvuur *et al.*, 2006; Verhage, 2002; Verhage, Gronden, Awanyo and Boateng, 2002), almost none has looked at the role of value management in ensuring efficiency in the sole sourcing aspect of public procurement, though the PPA 2008/09 Annual Report noted that 318 and 323 contracts were awarded in 2008 and 2009 through sole sourcing, with potential to increases. In addition, this aspect of procurement has been observed to be especially prone to abuses and corruption which makes measures to streamline its activities very critical (Kotoka, 2012). This study accordingly seeks to fill this gap by focusing on how sole sourcing procurement could be improved with VM, using the Ghana Highway Authority as the case study.

1.3 Research Questions

This study sought to find workable answers to the following questions:

1. What aspect of sole source procurement process impedes the achievement of value for money in GHA operations?

2. What VM principles could be applied to procurement in GHA?

3. What VM principles could promote value for money in sole source procurement process in the GHA?

4. What are the challenges in integrating VM principles in sole sourcing in public procurement at the GHA?

1.4 Aim of the Study

The aim of the study is to explore the application of Value Management principles in sole source method of public procurement in Ghana.

1.5 Objectives of the Study

In a bid to achieve the above stated aim of the study; the following objectives were set:

1. Identify the aspects of sole source procurement method that impedes the achievement of value for money.

2. Identify VM principles that could be applied to procurement.

3. Determine the VM principles that could promote value for money in sole source procurement process.

4. To determine the challenges in integrating VM principles in sole sourcing in public procurement at the GHA.

1.6 Justification of the Study

Procurement is a very important aspect of public sector governance that deals with huge public resources. The important nature of the sector makes most government prioritize to ensure that the sector is efficient and less wasteful. Similar objective underlies this study. In essence, this study investigates the integration of value management in public sector procurement, with a special focus on sole sourcing, in order to make the sector more efficient, transparent and deliver value for money. Accordingly, the public sector, especially those who undertake various procurement activities and especially the sector ministry responsible for the procurement function should find the findings of this study interesting. This is especially because the study will point out the challenges and inefficiencies involved in sole sourcing and how the encouragement of the practice could lead to loss of public funds and the misappropriation or misapplication of those funds.

Considering this value management is a relatively new subject matter and its connection with procurement is even newer, it is expected to attract attention from various scholars and researchers. This seminal investigation will open up a new angle of research with respect to the value management which student researchers could build upon in their own future studies. Students pursuing procurement at the higher level should especially find the conclusions of this study critically important.

The findings of the study will also be interesting to Ghana Highway Authority (GHA), the institution of focus in this study. This institution expends unbelievable amount of resources to produce materials and services to build or repair various roads in Ghana. It is therefore envisioned that the findings of this study will present an effective means of reducing waste, collusion and corruption should be a welcomed news. Accordingly, the institution of study is expected to benefit from the findings and policy recommendations of this study. Also, since the GHA is similar to other institutions in terms of operations, for instance the Urban Roads Department and the Feeder Roads Department, the findings of this study is expected to hold huge implication for these institutions as well.

1.7 Scope of the Study

This study covers value management which is a relatively recent area of study in the engineering discourse. Value management, though mainstreamed in some developed countries, with tremendous benefits accruing to them from it, is yet to receive similar attention in most developing countries, including Ghana. On the other hand, the methods and procedures in public procurement is quite widespread and well known. There is even legislation and an overarching body that oversees the procurement

rules, methods and procedures activities in Ghana. These two areas defines the focus of the study. In other words, the focus on the applying the principles of one (value management) in the other (sole sourcing method of public procurement).

The study a case study uses the GHA as its institution of focus. In other words, it samples the views of the procurement officials in this government institution to arrive at its findings and recommendations. This further defines the focus of the study as a similar study focuses on other institutions, especially a private one, could lead to different findings other than this very study. Even, in the institution, the study focuses on procurement officials and senior managers, which further defines the focus of the study as well. In sum, the scope of the study is defined by its subject area of focus, the institution selected for the study and the respondents from whom primary data is gathered.

1.8 Limitations of the Study

Every student research faces limitations, though most of these limitations are better evaluated after the data gathering. Nevertheless, time and financial resources have always been a limitation in most student research and this study is not immune to this challenge. In addition, getting the respondents to respond to the questions on time was a challenge that the study has to overcome.

It must however be acknowledged that integration value management in the procurement function does not have several empirical findings which made empirical review in this study quite a herculean task. The researcher has to use findings from

other developed nations to juxtapose for Ghana and hence other developing countries in this study.

1.9 Chapter Organization

The study is divided into five chapters.

i. Chapter one, entitled "Introduction" would deal with the introductory aspects, covering the research problem, objectives of the study, hypothesis, limitation etc.

ii. Chapter two is "Literature Review "which centers on the review of works that are relevant and related to the topic to be studied.

iii. Chapter three is entitled "Methodology" deals with procedures and methods the researcher will use in collecting information or data for the project work.

iv. Chapter four is "Data Presentation and Analysis of Findings".

v. Chapter five is made up of "Summary, Conclusion and Recommendation".

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Originating in the United States, the concept of Value Management (VM) has grown in scope and importance over a relatively short period of time. This is not surprising considering the value it deliver in most constructional projects. Alazemi (2011) emphasised that VM can be engaged in the entire construction process to ensure that projects, from inception to completion are carried out within time and yield best results within a low cost budgets. Abidin (2005) similarly observed that VM ensures quality outcomes by minimizing wastage, keep cost low, promotes efficient environment control and ensures customer satisfaction in construction projects. In fact, VM has gained traction in construction projects, leading to the adoption of its principles in other areas of organisational endeavour. For instance, Alazemi (2011) observed that VM has not only been used in the manufacturing and construction sectors but in the public sectors to achieve best value in operations pertaining to that sector. Accordingly, this study investigates how VM principles could be used in public sector procurement, with specific focus on sole source procurement.

2.2 Conceptual Definitions and History of Value Management

2.2.1 Conceptual Definition of Value Management

The concept of value is very germane in the field of engineering and manufacturing. According of Sperling (2001), value is mathematically defined as function divided by cost (value = function/cost). Thus value is achieved when function is enhanced while reducing cost. Kelly and Male (1993) also argues that, the creation of client

value is intricately linked to the exploration and resolution of project functionality. Value Management, on the other hand, refers to a style of management applied to get the right projects done right (Hammersky, 2002). Value management has also been defined by Kelly et al. (1993) as a 'service which maximizes the functional development from concept to completion, through the comparison and audit of all decisions against a value system determined by the client or customer" (cited from Coetzee, 2009). These two definitions overlooked the structured or the systematic nature of VM which is critical in getting projects managed for value. Other definitions however takes these into consideration and these were explored here.

Also, VM has been defined by the Australian/New Zealand Standard (cited in Morris and Pinto, 2010) as a "structured, and analytical process to achieve VFM by providing all the necessary functions at the lowest total cost consistent with the required levels of quality and performance". Similarly, Norton (1995:11) has defined VM as a multi-disciplinary and systematic effort directed towards analysing project functions to achieve best value at the lowest overall life cycle costs. Thus, the role of VM in reducing cost of projects is indisputable. This fact is further underscored by Watson (2005) who noted that VM identifies and eliminates unnecessarily cost without compromising the quality of the output. Jergeas and Revay (1999) concurred that VM transcends the mere reduction in quantities, usage of cheap materials or lowering of standards but rather refers to the analysis of project functionality that focuses on the elimination or the modification of elements that are cost adding in a project without contributing much in terms of project functionality, especially with respect to the final output. Thus, in the application of VM principles in sole sourcing, this study looks at how the identified principles could be applied to reduce the cost

associated with the process, improve its efficiency and achieve value-for-money in sole sourcing.

In addition to cost reduction and improvement in design, VM has other benefits that have been pointed out by Ramus *et al.* (2006). The author confirmed that VM is important due to its ability to clarify new investment goal clearly, ensuring open discussion and objective discussion of decisions, structuring evaluation framework and supporting business decisions with data aligned with corporate strategy and performance. In addition, adherence to the VM principles increases accountability, seeks and evaluate alternative decision, increases the potential for value for money, improves teamwork and communication for improved throughout in the entire organization. In addition, VM leads to increased participation by key stakeholders which invariably increases customer satisfaction and finally opens up opportunities for continuous improvement and long-term profitability (Ramus *et al.,* 2006).

Since the inception of VM in the United States, the concept has grown and expanded beyond its original American roots. Beginning from the late 1960s to the 1990s, different countries franchised the VM concept for usage in their construction and manufacturing sectors. Countries such as Japan, Italy, Australia, and Canada came up with different perspectives and approaches on VM, using the franchised version U.S. methodology (Dell'Isola, 1988). Eventually, these perspective or approaches' coalesced into the SAVE International and its affiliates approach (which is effectively the American Approach) that holds function analysis as the foundation of the VM process. The second is the Europe and Australia/New Zealand approach which view VM as a management style. However Alazemi (2011) recognise the

British/European Standard and the Australian-New Zealand Standard while arguing that the American system underlies these two systems, hence motivating this study to adopt a similar approach. It is therefore relevant to review the theoretical and empirical basis of the two standards prevalent in current VM.

2.2.2 History of Value Management

Historically, VM is an innovation which resulted from a shortage of materials and other resources due to wartime activity (Ashworth, 2004, Owusu, 2014). This method was first developed and introduced into the manufacturing sector in America, immediately after the World War II with the prime objective of gathering the principal stakeholders of a new project in a workshop over a four or five day period. Its origin, according to Ashworth (2004) is traced to the works Lawrence Miles who worked with General Electric (GE) during the Second World War Since the technique was introduced by Lawrence, it's been used extensively in several companies, industries or situations with resounding success. It is however not profession specific and could be practiced across industry (Owusu, 2014). In fact, as emphasised in the introduction, VM principles have been applied successfully in public sector operations and consulting work.

Potts (2004) confirmed the history that the value management process originated during the Second World War in GE in the USA. What prompted Lawrence Mill to pioneer VE or VM was mounting demand for GE products in the face of shortage of key materials. A spin-off of this approach, according to Potts (2004), was to eliminate costs that were not contributing value or performance. This procedure became known as value analysis. With ten, specifically ten years after Lawrence

Mills pioneered the concept, the technique was further developed by GE to become what we now know as value engineering (VE). Eventually, VM developed from VE and found its ardent promoters in the government sector where its techniques became a requirement on many public (as well as private projects) in Australia and of course, its home in the USA. In the late 1980s, VM found its way to the UK where its public sector was slow in its uptake. Value Management eventually became mainstreamed in the UK when Prime Contracting and Best Value concepts and practices were mainstreamed in that country as well. The sharp rise of interest in that country coincided with similar rise in Japan, Australia and several developed countries (Potts, 2004; Owusu, 2014).

In reality, the triggers of VM adoption is not just on its VFM offering or a focus on the benefits. Some of the triggers of VM includes new legislation, new opportunities for a commercial product, solution of a social problem or simply overspend on the budget (Bell, 1994).The application of VE in the US construction industry started in 1963 and spread rapidly. Since then, significant estimated cost savings have been reported which ran into millions of dollars. The UK construction industry started VE much later but reported tremendous benefits (Bell, 1994).

Though some school of thought has sought to distinguish between value management, value engineering and value analysis, Society of American Value Engineers (SAVE) International (2007) considers the three terms synonymous. Bell (1994) also noted that notwithstanding the methodology used, VE, VM and VA uses the same techniques and achieve similar aims. Subsequently, though VM is used in

this study, references to VE and VA should be considered synonymous usage of the terms in this study.

2.2.3 The Australian-New Zealand versus the British Standard

The British Standards regards VM as a management style which shares similar features with other management approaches, whereas the Australian-New Zealand Standards focuses on the workshop component and wider organizational use (cited in Morris and Pinto, 2010). This notwithstanding, both approaches handle the issue of getting multidisciplinary or stakeholders' teams to address quality, value and performance in all components of a project. Concerning these approaches, Alalshikh *et al.,* (2008) summed that there is no wrong or right approach for value study. Thus, the choice of an appropriate approach is determined by differences in situation, culture and thought involved in the specific project under consideration.

The Australian-New Zealand Standard for VM defined it as an analytical, systematic and structured process seeking to achieve VFM by providing, as much as practicable, every function that is required at a minimum total cost, while remaining consistent with adequate levels of quality and performance. The British system however borrowed most of its practices from risk management because they emerged around the same time and shared most of their concepts (Fong, 2004; Morris and Pinto, 2010). The Australian-New Zealand VM Standard is structured around a participatory workshop comprised of a multi-disciplinary, representative group of people working hand-in-hand to achieve the best value solution for a particular situation, which is similar to how the American system is run ((cited in Morris and Pinto, 2010; Dell'Isola, 1988). The British systems, according to In Fong (2004), are

mainly theoretical and have a strong practice base as well as a compelling professional image.

The Australian-New Zealand Standard identifies three vital success factors in the VM process. According to the Morris and Pinto (2010), the VM process is an analytical and structured group effort that attempts to establish and improve value as well as VFM in service, systems, products, processes and organizations. It is also evident in the Australian-New Zealand standard that there is a close alliance between value-for-money and the more traditional applications of VA and VE in design, operation, procurement, and disposal activities.

2.3 Procurement

2.3.1 Types of Procurement

The first recoded public procurement occurred between 2400 and 2800 B.C. and involve the procurement of fifty containers of oil. Afterwards, there has been another recorded procurement involving China and Greek in 800 B.C on silk trade (Thai, 2001; Coe, 1989). The Public Procurement Act, 2003 (Act 663) definition of the concept points to the need for discretion and prudence in the purchasing of goods and services that will best serve the interest of the wider population especially considering that it involves that usage of public funds. Impliedly, the best procurement should fit the bill of being properly planned, budgeted for as well as having invited bids. In addition, the bids should be evaluated, contracts awarded, managed, performance measured, monitored, audited and reported.

As earlier argued public procurement is critical to the survival of public service and hence huge amounts of money are expended on the exercise. It is on account of this that the World Bank came up with the three thematic areas of public procurement for its funded projects as measures taken to ensure fair competition among bidders, promote transparency in awarding and execution of contracts and developing the capacity of indigenous contractors and suppliers to match international standards (Thai, 2001).

Despite these guidelines, evidence available to the Public Procurement Board shows that there is little compliance to the procurement guidelines of the institution, as aptly evidenced in Table 2.1 below. Public institutions adherence to management system rose from 34.8 in 2007 to 54.9% which is considered quite a huge leap considering that it dipped in 2008. Generally, however, adhering to the appropriate management information system has not increased much. Similar observations were made under information and communication and contract management, though this scored approximately 56% and 59% respectively, from approximately 43.2% and 39% respectively. The highest level of compliance were recorded under the procurement processes which increased from 44.3% in 2007 to approximately 68% in 2009, though it must be emphasised there is greater room for improvement.

Table 2.1 Compliance Level of Public Institutions to Procurement Guidelines in

  Ghana

Description	2007 (%)	2008 (%)	2009 (%)
Management System	34.84	34.62	54.93
Information and Communication	43.15	39.82	56.03
Procurement Process	44.34	42.65	67.73
Contract Management	33.52	30.66	53.98
Average	**38.96**	**36.94**	**58.17**

Source: PPA Annual Report (2008/09)

There are several methods of procurement identified in the literature. Concerning the procurement of goods and works, the Public Procurement Act (2003) identifies the following methods of procurement:

1) International Competitive Tendering (ICT),

2) National Competitive Tendering (NCT),

3) Two-Stage Tendering (National or International),

4) Restricted Tendering (National or International),

5) Sole Source (Direct Procurement) and

5) Request for Quotations (RFQ).

With respect to the engagement of consultants, procurement methods used are

1) Quality and Cost Based selection (QCBS),

2) Quality Based Selection (QBS),

3) Least Cost Selection (LCS),

4) Selection under Fixed Budget (SFB),

5) Selection Based on Consultant's Qualification (SBCQ),

6) Sole Source Selection (SSS).

2.3.1 Conceptual Definitions and Stages of Sole Sourcing

The Public Procurement Act (2003) defines sole source as procurement from a supplier without competition or direct procurement subject to the approval of the appropriate authorities. There are various procurement methods identified in the literature and these are based on the kind of procurement being conducted. This section however covers sole source as the subject matter of interest in this study, though it is generally recognised that procurement under ICT and the NCT are preferred since they gave organisations or nation's value for money (Public Procurement Act, 2003).The Act provides that sole sourcing on goods should be undertaken for urgent goods or services, goods or services that can only be supplied by a single source due to its technical, physical or policy reasons and goods that must be single sourced due to national security (non-economical) implications.

2.4 Stage/Principles of Value Management

According to SAVE (2007) Value Management is scheduled into three main stages – the pre-preparatory or pre-workshop phase, the workshop or job plan phase and the post-workshop stage. As summarised in Figure 2.1 and 2.2, the second stage or the job plan phase involves six stages that are critical to the success of the project. In figure 2.1 below, it is obvious that VM Job plan basically comprises the following sequential phases: Pre-VM Workshop Study Phase, Information Phase, Function Analysis Phase, Creative Phase, Evaluation Phase, Development Phase, Presentation Phase, Implementation Phase and Post-VM Workshop Phase (SAVE, 2007).
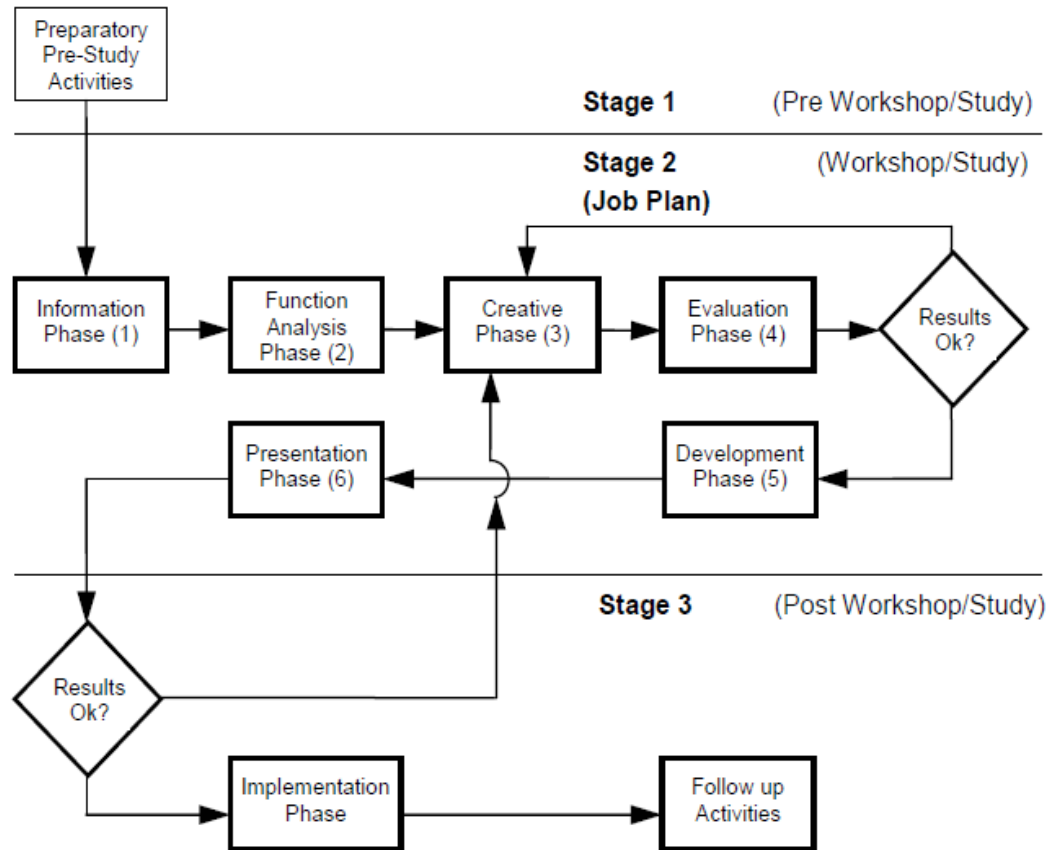
Figure 2.1 Stages in Value Management

Source: Adopted from SAVE (2007) by O'Farrel (2010)

Value Management is spotlighted on a participatory workshop comprising a representative and multi-disciplinary group of people led by an independent facilitator who works with the group to seek the best value outcome for a particular project situation (Lennon and Howard, n.d.).

2.4.1 Pre-Workshop Phase

As indicated in Figure 2.1, VM involves three main phases. The first is the Pre Workshop Planning phase where various issues have to be noted to ensure that the subsequent processes are successful. According to Norton *et al.* (1995) this phase ensures that the study to be done is properly targeted with sufficient information to

proceed with proper coordination of all parties involved. These guidelines have been classified by Lennon and Howard (n.d.) as follows:

- Preparing and reviewing the Value Management brief

- Selecting Study participants

- Organising a venue

- Gathering distributing relevant information

- Preparing the facilitation strategy and agenda

- Briefing participants as required

According to Norton *et al.* (1995) the distinct characterises of the pre-workshop phase are as follows:

- Orientation meeting

- Finalising the team structure

- Selection of the team members

- Deciding on the duration of the study

- Determining study location and conditions

- Information gathering

- A visit to the site

- Cost estimate verification

- Preparation of models and efficiency data

2.4.2 Workshop Phase

The workshop phase involves seven key steps. During the workshop phase, the following guidelines are very relevant in ensuring the success of the process. These guidelines have been classified by Lennon & Howard (n.d.) as follows:

- Confirming and studying the scope and objectives of the project

- Building understanding or clear knowledge of the project and its context

- Establishing a criteria for success

- Generating multiple ideas to improve value

- Evaluating ideas against criteria for success and then

- Developing options and action plans

Information Phase/Analysis

The information phase is basically to get members of the VM team to broaden their perspectives on the project, sometimes beyond their area of expertise. According to the Kelly (1993), participants are supposed to come up with answers to the question of 'what does it do?' and 'what else does it do?' during this phase. Hence, the process is more than merely defining and understanding the nature of the problem but on producing as many answers as possible to simple questions in a more specific and efficient way. The Function Analysis Technique (FAST) is an effective tool to use in this phase since it's been observed to gives specific information on client needs, client wants, project constraints, budgetary limits and time available (Kelly, 1993).

The successful application of VM by Lawrence Miles and the US Navy led Charles Bytheway to develop a diagramming tool that could be used during VM analysis. He called this technique Function Analysis Technique (FAST) which was designed to identify, classify, and denote the functions VM team should focus (cited in Alazemi, 2011). Bytheway's technique is quite relevant in building teamwork and achieving consensus from team members on a particular problem the group is faced with and hence identifying potential areas to improve on (cited in Alazemi, 2011).

The FAST diagram, as depicted below, is a communications vehicle that uses a horizontal directional orientation described as the HOW-WHY dimension. The HOW and WHY questions are asked to enable the team structure the logic behind the system's functions and position team members to contribute equally and communicate with one another while objectively addressing the issues to be resolved without preconceived conclusions (Crow, 2002). The model has been illustrated in Figure 4.3 below. The FAST framework has the demerit of being ineffective when groups are large. Subsequently the VM must have knowledge on other tools such as SWOT analysis and pair-wise comparison which are equally effective in VA (Institute of Value Management, 2014).
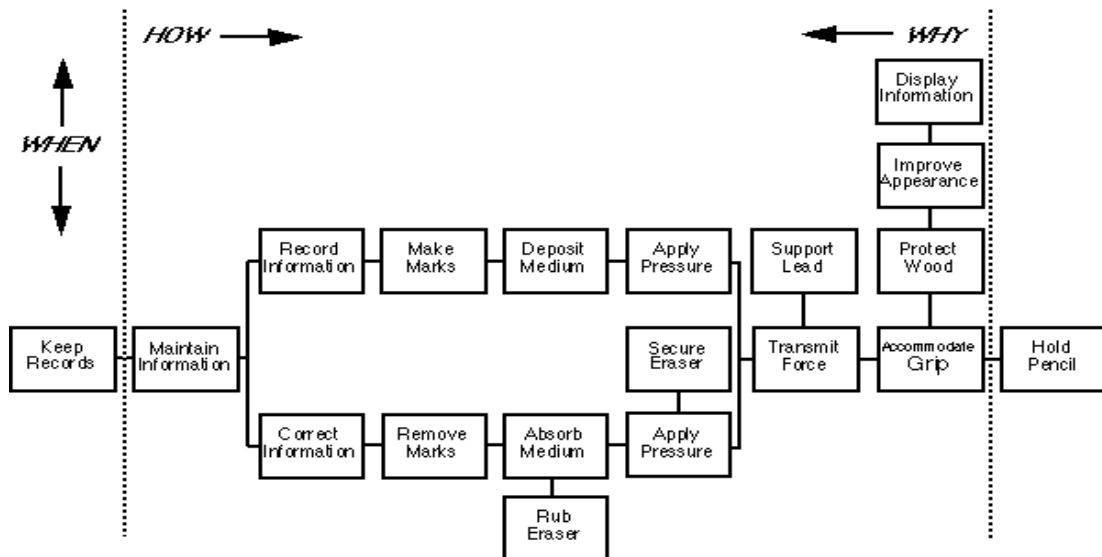
Figure 2.2: Function Analysis Technique (FAST) Technique

Source: Crow (2002)

The information phase is further characterised into presentation and function analysis. The presentation activity involves a senior manager giving a brief description of the goals for the study and the team members adherence to the VM process. In addition, the specialist participants, for instance mechanical, structural and electrical engineer and design team members are allowed to make their presentation at this juncture (Coetzee, 2009). In the case of sole source, members of the procurement team as well the contractors to whom the contract is being sourced could be asked to make similar presentations. Coetzee (2009) further noted that verbal presentations during this phase clears misconceptions that might have filtered through and could have existed between the various disciplines while bringing other participants up to speed to participate as equal team members in the session. It must however be emphasised that the application of these principles in the Ghanaian procurement sector is limited.

Function Phase/Analysis

Norton (1995) noted that "Functional analysis is a key component of VM. It forces a broader and more comprehensive understanding of the project by stimulating intense discussion and by compelling team members to view aspects they might not normally consider". Again, the FAST diagram is useful in this stage to structure the functions in a hierarchical sequence during this phase (Kelly, 1993). Functions can be classified as either basic or secondary, which are then costed to get a cost to worth ratio to identify areas of poor value.

With respect to sole sourcing, participants have to identify the task at hand, its function at the primary and secondary levels, and cost involved. Thereafter the structural form of the process has to be determined and cost reduction process and process improvement process initiated to make the process better while reducing cost.

Creative Phase/Analysis

At the creative phase team workshop participants have the "opportunity to put forward their suggestions for beneficial change without fear of recrimination or criticism" leading to the generation of litany of ideas on alternative ways to achieve the functions identified earlier (Thomas and Thomas 2005). Again, the FAST diagram is useful in the creative thinking phase, especially in breaking the problem into convenient portions and identify actual problems instead of the symptoms of the problem, though it takes lots of time to do properly and can constrain the VM process.

The creative process provides synergy which is especially created by the team leader/facilitator's ability to create a congenial atmosphere which makes it easier for team members to divorce themselves from familiar modes of analytical thinking (Coetzee, 2009). However, participants should be beware various blocks, especially perceptual blocks, habitual blocks, emotional blocks, cultural and environmental blocks and professional blocks.

Evaluation Phase/Analysis

At this stage, participants cooperatively appraise and prioritise ideas that add value while discarding that do not add value towards obtaining proposals which can be implemented. In prioritising these ideas, participants must evaluate the advantages and disadvantages of each idea in an objective way while criticism should equally be objective. Norton (1995) noted that the evaluation criteria should be cost or the savings potential on staff cost, maintenance cost and initial capital cost savings; Function, that is issues related to aesthetics, safety, security, future expansion possibilities; time and other general considerations, e.g., politics, the constructability of the idea, jurisdictional matters etc. in sole source for instance, the decision as to whom to sole source a good, work or service from should be settled after going through such a decision making. Once the procurement process has gone through this process, we can be certain that the Ghana will get value for money. Some of the available and often-used evaluation techniques in the selection of ideas utilised by VM facilitators are either the simple democratic selection or complex democratic selection.

Development Phase/Analysis

At this stage, the selected ideas are interrogated further to establish their economic viability and technical feasibility. According to Kelly, *et al.,* (1993), this is a time consuming phase, hence sometimes done outside the VM workshop. Norton (1995) noted that a typical proposal will include the original design description, alternative design description, advantages/disadvantages of the proposal, relevant discussion around it, life cycle cost implications and supporting technical backup.

Presentation Phase/Analysis

At the presentation phase, the result is communicated to decision makers and the original design team which might be composed of both technical and non-technical professionals. "The refined ideas supported by drawings, calculations and costs are presented by the team to the body that commissioned the VM workshop" (Coetzee, 2009). The presentations must focus on communicating an understanding of the proposals through the use of visual aids, confident articulation of ideas and the usage of clear language.

2.4.3 Post-Workshop Phase

It should be noted that the mere completion of the physical VM workshop does not bring a complete halt to the VM process; neither does it tell that the process is over. In fact, a number of post-study activities need to be done or carried out in order to reap maximum benefits of the VM study. According to Lennon and Howard (n.d.), some of the guidelines that lead to success in the post-workshop phase are:

- Debriefing with the client
- Preparing and delivering the study report

The post-study activities ensure there isn't a poor implementation of the VM outcomes since this constitutes a failure or waste of time. Also, the post-workshop phase provides the opportunity to collate lessons learned in order to improve the VM process. This phase is accordingly divided into three steps: 1) report preparation and review, 2) implementation and 3) follow up (Coetzee, 2009).

2.5 Application of Value Management Principles to Improve Sole Sourcing

Shublaq (2008) noted that the public sector exist to basically create public value. Impliedly, the Public Procurement Authority, which is also a public institution exist to create public value through the procurement process. This means that if the Procurement Authority is working as expected, then its activities should increase the public value in both the short and long run. Though VM has not been applied in any of the procurement functions of the Procurement Authority, its integration is supposed to deliver value to the nation and the institutions involved.

As earlier expressed, there are several terms that are used synonymously with VM. In fact Alazemi (2011) confirmed that Value Methodology, Value Analysis (VA), Value Engineering (VE), and Value Management (VM) are used interchangeably in several practice areas where VM have been applied. The formal application of a value methodology to a project aiming at improving its value is called value study, although SAVE (2007) has indicated but it can be referred to other names such as those already mentioned, i.e., value engineering, value analysis, value planning and value management.

Value can be added to a process, product, design, procedure or even service (SAVE, 2007). Alazemi (2011) surmised that VM (or any of its synonymous) have been applied to a wide variety of subject areas, including industrial or consumer products, manufacturing processes, business planning, construction projects, business procedures and in the services sector. However, while several empirical studies have been conducted with respect to the application of VM in the manufacturing and the construction sector, the application of its principles in the services and the business planning sectors is still under development. In fact, there is almost a dearth of literature with respect to the application of VM to procurement practices, especially sole source. Though there are no literatures in the application of VM to sole source, there was one on procurement reported by the National Audit Service (2013).

In a study reported by the National Audit Service (2013) it was found that there was a £200 million Design, Build, Finance and Operate contract undertaken by the UK Highways Agency in 1999 were exposed to risk in design, construction and operation. The Highway agency addressed this risk by undertaking VM which involved representation from all the stakeholders in the project which helped the project monitor its risks, form effective partnership during project construction and timely review and resolve project challenges. As a result, highway project were delivered safely, within budget and opened five months ahead of schedule.

2.6. Integrating Value Management in Sole Sourcing in Public Procurement

Generally procurement has its own challenges that must be tackled in order to improve the processes involves. Some of the common procurement challenges includes buying items at prices which does not represent value, purchasing goods and

services at uneconomic quantities, excessive stock holdings, suppliers failing to deliver good, purchasing goods and services that are not of appropriate quality and services received, impropriety and fraud and missed opportunities. Other risks involved in procurement in the road construction industry, and which by extension could apply to the procurement process, includes political or business risk, commissioning and operating risk, demand risk, residual value risk, technology obsolesce risk, project financing risk, external financial risk, risk of contractor default and disposal risk. It is therefore important for procurement in this sector to have a means of overcoming these risks, with VM being identified as one of such avenues (National Audit Office, 2013).

Although the relevance of VM as a component in project execution is undisputed, it has faced challenges in its implementation in certain circles. For instance, Shublaq (2008) argued that although there has been much satisfaction with the results derived from VM in the public sector in the Gulf Region, public decision makers encounter the following challenges that could even affect the implementation of the programme. The challenges faced in the implementation of VM in the Gulf Region includes:

- Resistance to change (as a natural and instinctive reaction to anything new)
- Carelessness in many sectors in terms of developing skills and improving the standards of performance through training and rehabilitation
- Lack of clear vision and understanding of the importance of applying this kind of study

- Absence of encouraging reason to apply VM (appliers and non-appliers are the same) and

- Lack of true commitment from the ministries, department or agencies that is supposed to oversee the implementation of VM.

Cheah and Ting (2005) undertook a study to gain insights from a sample of experienced managers attending an international VM/VE on the challenges facing the practice from their various jurisdictions. The study concluded from the views of its 54 sampled respondents that generally, the use of VM/VE in construction was supported, it faces challenges that come in the form of inflexibility in contractual provisions (61%), the absence of support from those in Authority (61%) and poor understanding of the methodology (59%).

Also, the studies uncovered practitioners' mistaken belief and hence approach to VM as merely a cost-cutting tool and close link that exists between the use of the term value in VM and allied management techniques such as Total Quality Management (Alazemi, 2011). In Cheah and Ting's (2005) view therefore, practitioners of VM in their study do not benefit from the multiplicity of the benefits in the application of VM which includes improved communication, enhanced business decision making in business, increasing effectiveness, fostering teamwork, creating a competitive environment, delivering better products and services, creating a culture that connects everyone as well as yielding results for all stakeholders involved in the project.

Other authors are however convinced the issues of cost cutting or cost control should be central in the adoption and usage of VM. Cheah and Ting (2005) for instance

argued that Value engineering gets closer to cost control because it looks at ways to reduce costs on specific items or activities. Also, Alazemi (2011) emphasise the use of value methodologies in cost control when he noted that VM can be highly effective when used alongside traditional cost control methods with Thai (2009) confirming that VM is literally synonymous with the identification of unnecessary cost.

Cheah and Ting (2005) also found in his study that there were challenges with the lack of time to implement VM/VE on projects (65%), conflicts of interest (48%), lack of communication among stakeholders (43%), and a divided/segmented project decision-making process (39%). Fong (2004) is however convinced that taking an integrative approach will minimise some of the challenges identified by Cheah and Ting (2005).

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents the methodology of the study. It focuses on the design of the study, method of sampling and analysis employed in the study among others.

3.2 Study Setting

The study investigates the application of VM principles in sole source procurement of public goods, works and consulting. The investigation is done with the Ghana Highway Authority (GHA) as the case study institution, meaning that the study's settings is within the constructions of roads sector. The GHA is a public institution mandated by Ministry of Roads and Highways with the role of supervision and administration of trunk roads around the country.

3.3 Sample Design

This study adopts the quantitative survey design. The survey was regarded the most appropriate method to capture the perceptions of respondents in this study and was hence considered appropriate in meeting the objectives of this study. In addition, the survey approach gives respondents opportunity to answer questions to the best of their knowledge and experiences but within options provided in mostly the close-ended questionnaire design.

3.4 Population

According to Fisher (2010), the first step towards undertaking a scientific study is to define what the population of the study is. The accuracy of the data in a study is therefore contingent on defining the characteristics of the subjects that constitute the population of the study, which in this study refers to workers of GHA. This population conforms to the definition of the concept as representing the overall potential respondents a study should gather data from and from whom it must therefore make inferences or generalizations that includes every member of the population (Fisher, 2010).

The GHA employs approximately 700 workers nationwide. Out of this number, 155 Civil Engineers, Quantity Surveyors and other Project Managers are found in its Head office in Accra which happens to be where the study is conducted. Accordingly, the employees in the company's Head office in Accra were construed as the working population in the study. This definition confirms Kumekpor's (2002) definition of the concept. According to him, the population in a study is made up of the overall number of people the researcher wants to learn about. Also, the data gathering in this study was concentrated in the Headoffice because all procurement decisions originate from there which gives the added impetus to investigate the issue from the root upwards.

3.5 Sampling technique and size

Most studies do not study the entire population for practical reasons. There is therefore the need for a sample from where the conclusions are generalized for the entire population. According to Anaman (2014), sampling is an economically feasible way to cover every unit of the population. Sampling ensures that

representative members of a population are chosen to enable a researcher gather data that is representative enough to generalize from the sample to the population. Accordingly, the purposive sampling technique was used in the selection of Procurement officers, Project Managers, Consultant, Quantity Surveyors, Engineers and other relevant key personnel from the head office of the GHA whose views informed the analysis and the conclusion in the study.

The selection of a representative sample size from the population was made using Yamane's (1973) mathematical model. Details of this model is explained below. According to the model, approximately 61 respondents is representative of the 155 working population in the study. The optimal sample size calculation and selection was based Yamane's (1973) model. The formula is stated as follows:

$\{n = N/1+N (e) 2\}$ where;

   n = desired sample size,

   N = total number in the population and

   e = margin of error (10%).

The optimal sample size (n) is therefore calculated from the equation as follows;

$\{n = N/1+N (e) 2\}$

   n = (155) / (1+ (155)*(0.1)2)

   n = (155)/ (1+1.55)

   n = 155/2.55

   n = 60.78. This comes to approximately 61 respondents.

The sample of 61 was considered sufficient in achieving the objectives of the study. Ahiadeke (2008) confirms this when he noted that a larger sample size is not a proxy to getting a representative sample and hence not a guarantee that the finding in the study could be generalized from the sample to the population. Therefore this study's 61 respondents were considered adequate in meeting the objectives of this study. This was further confirmed by Neuman (2003) who observed that what is really relevant in a study of this nature is how well-designed the design and how scientific the sampling process has been.

3.6 Instrument of Data Collection

The study made use of both secondary and primary data. The latter was collected with the structured questionnaire. The secondary data covered empirical and theoretical literature gathered to establish the background and give the researcher a broad base with respect to the issues to be captured in the questionnaire design. Though the questionnaire was structured, there were some few open ended questions that gave respondents the opportunity to express themselves. However the closed-ended questions predominated. Moreover, this data gathering method was chosen because it is a convenient method for collecting data from a sample that might be larger and hence needs uniform questions in the process of data gathering (Kumekpor, 2002).

The questionnaires were divided into four mains sections, with each section designed to solicit for specific information, according to the objectives of the study. The first section traditionally solicited biographic data. The other sections solicited information relating to the objectives of the study. A five-point Likert scale was used

to facilitate responses to questions to facilitate responses choice in answering those questions. The details have been captured in Appendix One below.

3.7 Validation of Instrument for Data Gathering

To ensure that the questions posed were not arbitrary or disjoined from the objectives of the study, the researcher-designed questionnaire were be vetted by the supervisor. Accordingly, the questions were rigorously vetted to ensure it's reliable in helping achieve the objectives of the study. Also, the questions were pretested or piloted to improve its validity. In fact, it's generally acknowledged that one means of ensuring that research instrument is reliable is by piloting or pretesting it with some few respondents before full-scale administration is embarked on.

Piloting ensures that wrongly worded questions or questions that do not have appropriately corresponding responses are identified and corrected. Anaman (2014) similarly underscored that "pilot survey often involves a few respondents possibly ten or twenty within the population and the results of this survey are not included in the final study". He noted that researchers undertake piloting to check the appropriateness of the questions posed to enable the researcher make appropriate modifications to the questions posed before they are administered to the research participants. The pretesting was done with three officials of GHA. Their suggestions, which pertained to grammar and structure of questions, were incorporated to improve the reliability and validity of the instrument of data gathering.

3.8 Ethical consideration

Since the subjects for this study are human being, ethical issues had to be observed. In this case, ethical considerations relating to confidentiality, privacy, informed consent and respect of subjects were observed. It must be emphasized that participation in the study was completely voluntary, without any trace or coercion or cajoling. Anaman (2014) also asserts that ethical issues involve the legal and institutional framework (or the moral issues) put in place while conducting a study. This study ensured that these ethical issues were upheld as much as practicable.

3.9 Data Analysis

The study used the Statistical Package for the Social Sciences (SPSS – Version 21) and Microsoft Excel were the principal tools used for data analysis. The analysis was mainly descriptive involving the use of frequency tables, bar charts and pie charts. In addition, the analysis involved descriptive tools such as mean and standard deviation to illustrate deviation of the population from the sample mean where applicable.

The researcher started the analysis by inputting the responses into Microsoft excel. Thereafter, the responses were uploaded into the SPSS software where frequency, percentages, mean and standard deviations were generated for the responses. The responses were then exported to Microsoft word to commence the verbal interpretation of these descriptions. The tables containing results of these analyses and a more detailed description of the findings are presented in Chapter four.

In addition to the descriptive analysis, the RII was used to rank aspect of sole source that ensures value for money and the challenges in integrating VM variables to sole

source. In essence the RII was used to identify aspects of sole source procurement that impedes value for money and rank these factors.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

Chapter four covers the analysis and discussion of findings of the study. The content of this chapter includes background of respondents, aspects of sole source procurement method that impedes the achievement of value for money, value management principles that could be applied to procurement, value management principles that could promote value for money in sole source procurement process and the challenges in integrating value management principles in sole sourcing in public procurement at the Ghana High authority.

Out of the sixty-one (61) questionnaires distributed, only fifty-six (56) were returned. Five of the questionnaires were partially completed, and therefore discarded. Thus the response rate represents 91.8 percent.

4.1 Demographic Background of Respondents

It is obvious from Table 4.1 that 82.1 percent of the respondents were males while 17.9 percent were females. The skewed representation of gender can be attributed to the fact that fewer women engage in civil engineering and construction in general. It can also be seen from Table 4.2 that, majority of the respondents constituting 58.9 percent were those between the ages of 30 and 39 years. Other age groups in the study included those between the ages of 20 and 29 years constituting 16.1 percent, 40 to 49 years constituting 19.6 percent and those between 50-59 years constituting 5.4 percent. It is obvious from the result that most of the respondents were in the young adult stage and economically active group.

In term of education, 67.9 percent of the respondents had their bachelor's degree, 16.1 percent had their Master's degree, 8.9 percent had their diploma or HND and 7.1 percent had professional certification. The study reveals a high literacy rate among respondents which enhances the data collection aspect of this study.

In relation to the working experience of respondents, it was observed from Table 4.2 that majority of the respondents representing 41.1 percent have worked at Ghana Highway Authority for a period between 4 to 6 years. Also about 33.9 percent of the respondents have worked at GHA for a period ranging between 7 to 10 years while 25 percent have worked for less than 3 years.

Finally, Table 4.1 revealed that 29 respondents (representing 51.8 percent) were civil engineers, 25 respondents (representing 44.6 percent) were Quantity Surveyors with only 2 respondents (representing 3.6 percent) being project managers. The result clearly shows that at least the respondents with various occupation at GHA are represented in the study, which makes this study relevant in terms of representing views from the full gamut of employees in the organisation. The demographic information of the respondents is summarised in Table 4.1 below.

Table 4.1: Demographic Characteristics of Respondents

Variables	Category	Frequency	Percent
Gender	Male	46	82.1
	Female	10	17.9
	Total	**56**	**100.0**
Age	20-29 years	9	16.1
	30-39 years	33	58.9
	40-49 years	11	19.6
	50-59 years	3	5.4
	Total	**56**	**100.0**
Education	Diploma/HND	5	8.9
	Bachelor's Degree	38	67.9
	Master's Degree	9	16.1
	Professional Certification	4	7.1
	Total	**56**	**100.0**
Working Experience	Below 3 years	14	25.0
	Between 4 to 6 years	23	41.1
	Between 7 to 10 years	19	33.9
	Total	**56**	**100.0**
Occupation	Quantity Surveyors	25	44.6
	Civil Engineer	29	51.8
	Project Manager	2	3.6
	Total	**56**	**100.0**

Source: Field work (2015)

In Figure 4.1, 91.1 percent of the respondents indicated GHA undertake sole source procurement while 3.6 percent of the respondents said they do not undertake sole sourcing procurement. About 5.4 percent of the respondents did not know if GHA undertake sole source procurement. It is obvious from the responses that GHA undertake sole sourcing procurement. This kind of procurement is well articulated in the Public Procurement Act, 2003 and it is also one of the prevalent procurement

platforms used by many public sectors institutions. The Act provides that a sole source procurement could only be undertaken when the good or service is urgently needed for remedial works and also provided it is restricted to the minimum requirement to meet the urgent need and a competitive tendering could not be commenced within the period. This type of procurement is however largely abused as noted by (Kotoka, 2012). The abuse has widely occurred because sole source procurement is subject to a single supplier without competition (direct procurement) which takes out the thoroughness needed to ensure the organisation gets value for money in situations where the contract is competitively bid for.
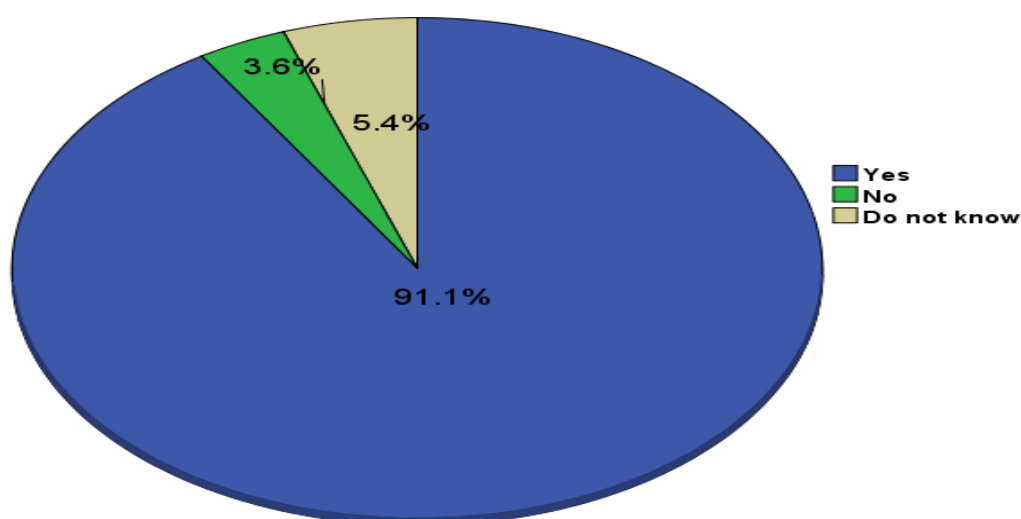
Figure 4.1: Does GHA undertake Sole Source Procurement

Source: Fieldwork, 2015

The researcher also sought the views of the respondents on the activities GHA undertake during sole source procurement. In response, majority of the respondents

noted GHA undertake these activities during sole sourcing procurement that is having a job plan (representing 85.7 percent), pre-study analysis (representing 100 percent) and implementation analysis (representing 87.5 percent).

However, majority of the respondents indicated that GHA do not undertake the following activities: information analysis (representing 92.9 percent), function analysis (representing 66.1 percent), evaluation analysis (representing 89.3 percent), presentation analysis (representing 60.7 percent), and development analysis representing 71.4 percent). These responses are presented in Table 4.2.

Table 4.2: Activities undertaken as part of operational project set-up

	Yes		No		Do not know	
Activity	**Frequency**	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
Having a job plan	48	85.7	6	10.7	2	3.6
Pre-study analysis	56	100.0	-	-	-	-
Information analysis	2	3.6	52	92.9	2	3.6
Function analysis	5	8.9	37	66.1	14	25.0
Evaluation analysis	4	7.1	50	89.3	2	3.6
Presentation analysis	8	14.3	34	60.7	14	25.0
Development analysis	6	10.7	40	71.4	10	17.9
Implementation Analysis	4	7.1	49	87.5	3	5.4

Source: Field work (2015)

Respondents were further asked if sole source procurement impedes value for money in GHA's procurement process. Value for money here refers to a situation where project outcome can be equated to the investment made or where a project is considered worth the investment made to bring it forth. Thus, the study sought to investigate if the sole source procurement practices in the institution enable them get worth for the amount of funds expended to procure the products or services in each case of procurement.

In response to the question, about 67.9 percent of the respondents indicated that indeed sole source pocurement impede value for money in GHA procurement process. On the contrary about 8.9 percent of the respondents said sole source procurement does not impede on value for money while 23.2 percent did not know if sole source procurement impede value for money. The responses provided suggest that sole sourcing procurement impede value for money in GHA's procurement process.
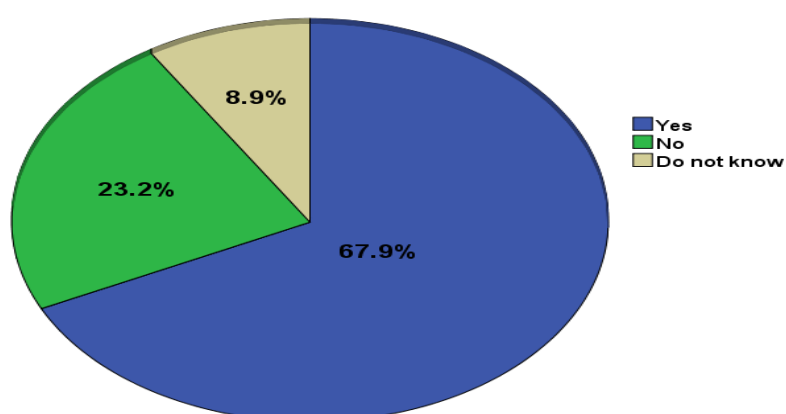
Figure 4.2: Views on whether Sole Source Procurement Impede on Value-for-

   Money

Source: Fieldwork, 2015

The RII ranking on the aspects of sole source procurement that impedes value for money is presented in Table 4.3 below. Based on the ranking (R) of the weighted average of the Relative Importance Indices (RII), it was revealed that the lack of advertisements for expressions of interest for consulting services is the main aspect of sole source procurement which impede value for money (RII=0.781). This was closely followed by the lack of a national or international competitive tender ((RII=0.759), lack of competition (RII=0.728), purchasing of urgently needed goods (RII=0.728) and that nature of the conduct of sole source procurement (i.e., its lack of planned, budgeted nor have opened bids) (RII=0.714). This aspects of sole source identified above are the major five impeding on value for money.

The least ranked factors impeding value for money were identified to be the lack of least cost selection (RII=0.696), lack of price quotations (RII=0.0.621), lack of selection based on Quality (RII=0.0.567) and lack of pre-qualification for Cost based selection (RII=0.496). The details are summarised in Table 4.3 below.

Table 4.3: Aspects of Sole Source that Impede Value for Money

Aspects of Sole Source that Impede Value for Money	RII	Rank
Lack of competition	0.728	3
Lack of pre-qualification	0.496	9
Lack of a national or international competitive tender	0.759	2
Lack of price quotations	0.621	7
Lack of advertisements for expressions of interest for consulting services	0.781	1
Lack of least cost selection	0.696	6
Lack of selection based on Quality and Cost	0.567	8
Purchasing of urgently needed goods	0.728	3
Lack of planned, budgeted nor have opened bids	0.714	5

Source: Field work (2015)

4.3 Value Management Principles applied to Sole Source Procurement in GHA

This section seeks to investigate whether value management can be applied to sole sourcing procurement and if so which value management principles can be applied to sole sourcing. From Figure 4.3, 89.3 percent of the respondents indicated that value management principles can be applied to sole source procurement whiles 10.7 percent of the respondents said it cannot be applied to sole sourcing, with the following reasons:

1. The urgent nature of sole source makes the application of a laborious processes in VM difficult to do.

2. Sole source by its nature is not highly scrutinised and will face resistance if VM is applied.

3. VM is used with expert knowledge which I am not sure GHA has

4. The top managers in GHA will resist the attempt because it will delay the procurement process and also plug holes where they stand to benefit personally.
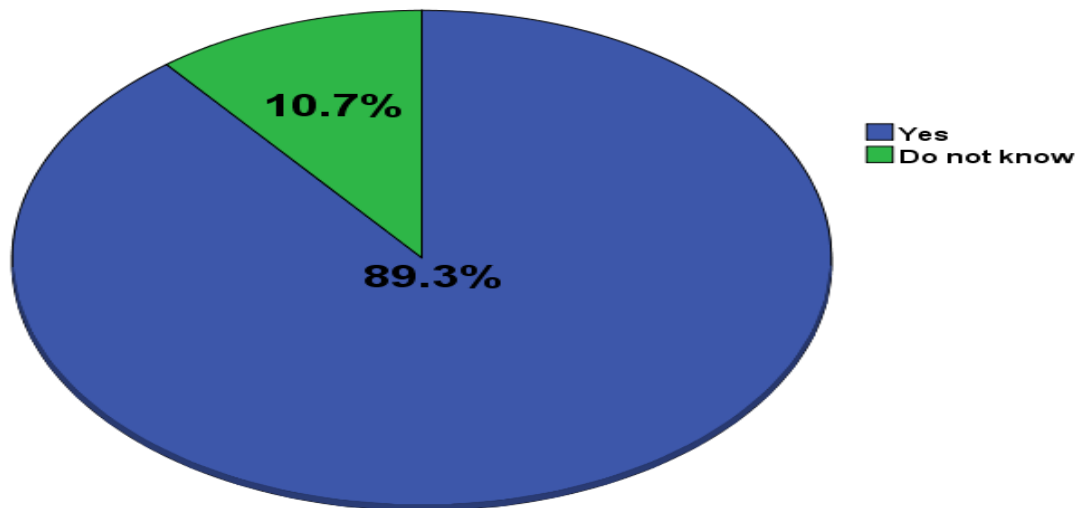
Figure 4.3: The Application of Value Management Principles to Sole Source Procurement

Source: Fieldwork, 2015

From Table 4.4, 26 (representing 46.4 percent) of the respondents agreed that pre-study activities can be applied to sole source procurement and also 21 (representing 37.5 percent) of the respondents strongly agreed that pre-study activities can be applied to sole source procurement. On the contrary, 2 (representing 3.6 percent) and 7 (representing 12.5 percent) strongly disagreed and disagreed respectively that that pre-study activities cannot be applied to sole source procurement. The mean score obtained was 4.02 with a standard deviation of 1.104, suggesting that on the average respondents agreed that pre-study activities can be applied to sole source procurement.

Also 28 (representing 50.0 percent) of the respondents agreed that a job plan can be applied to sole source procurement and 21 (representing 33.9 percent) of the respondents strongly agreed. However, 7 (representing 12.5 percent) of the respondents disagreed while 2 (representing 3.6 percent) remained neutral. With a mean score of 4.05 and a standard deviation of 0.942, it is obvious that on the average respondents agreed that a job plan can be applied to sole source procurement.

As indicated in Table 4.4, 48.2 percent and 33.9 percent agreed and strongly agreed respectively that information gathering activities could be applied to sole source procurement in the GHA. On the other hand, 7.1 percent of the respondents disagreed while 10.7 percent of the respondents remained neutral. The mean score recorded was 4.09 accompanied by a standard deviation of 0.859, implying that on the average respondents agree that information gathering activities is applicable to sole source procurement.

Again, 29 (representing 51.8 percent) and 11 (representing 19.6 percent) of the respondents agreed and strongly agreed respectively that function analysis activities can be applied to sole source procurement whereas 16 (representing 28.6 percent) remained neutral. Since the mean score obtained was 3.91 with a standard deviation of 0.695, it implies that on the average respondents agreed that function analysis activities can be applied to sole source procurement. Similarly, 50.0 percent and 17.9 percent agreed and strongly agreed respectively that creative analysis activities is applicable to sole source procurement. However, 5.4 percent of the respondents strongly disagreed while 26.8 percent of the respondents remained neutral. The mean

score recorded was 3.75 accompanied by a standard deviation of 0.939, implying that on the average respondents agreed that creative analysis activities is applicable to sole source procurement.

About 41.1 percent and 37.5 percent of the respondents strongly agreed and agreed respectively that evaluation activities can be applied to sole source procurement. On the contrary, 10.7 percent disagreed while another 10.7 percent remained neutral. Since the mean score obtained was 4.09 with a standard deviation of 0.978, it implies that on the average respondents agreed that evaluation activities can be applied to sole source procurement.

Table 4.4 indicates that 33.9 percent and 25.0 percent of the respondents agreed and strongly agreed respectively that development activities can be applied to sole source procurement. On the contrary, 5.4 percent and 12.5 percent of the respondents strongly disagreed and disagreed respectively while 23.2 percent remained neutral. The mean score obtained was 3.61 with standard deviation of 1.155 suggesting that on the average respondents agreed that development activities can be applied to sole source procurement. Likewise from Table 4.4, 39.3 percent and 19.6 percent of the respondents agreed and strongly agreed respectively that presentation activities can be applied to sole source procurement. On the contrary, 10.7 percent and 7.1 percent of the respondents strongly disagreed and disagreed respectively while 23.2 percent remained neutral. The mean score obtained was 3.50 with standard deviation of 1.206 suggesting that on the average respondents agreed that presentation activities can be applied to sole source procurement.

Regarding the application of implementation activities to sole source procurement, 55.4 percent of the respondents agreed and also 35.7 percent of the respondents strongly agreed. However, 5.4 percent strongly disagreed while 3.6 percent remained neutral. With a mean score of 4.16 and standard deviation of 0.930, it can be said that implementation activities can be applied to sole source procurement. Also regarding the application of follow-up activities to sole source procurement, 60.7 percent of the respondents agreed and also 30.4 percent of the respondents strongly agreed. However, 5.4 percent disagreed while 3.6 percent remained neutral. With a mean score of 4.16 and standard deviation of 0.930, it can be said that follow-up activities can be applied sole source procurement.

Furthermore, 29 (representing 51.8 percent) agreed that independent facilitator can be used in sole source procurement and 10 (representing 17.9 percent) agreed. On the contrary, 3 (representing 5.4 percent) and 2 (representing 3.6 percent) disagreed and strongly disagreed respectively with 12 (representing 21.4 percent) remaining neutral. The mean score obtained was 3.75 with standard deviation of 0.939 suggesting on the average respondents agreed that independent facilitator can be used in sole source procurement.

From Table 4.4, 48.2 percent and 30.4 percent of the respondents agreed and strongly agreed respectively to the fact that participatory problem solving is usable in sole source procurement in GHA while 21.4 percent remained neutral. Since the mean score obtained was 4.09 with a standard deviation of 0.721, it suggest that on the average respondents agreed that participatory problem solving is useful in sole source procurement.

Finally, 28 (representing 50.0 percent) of the respondents agreed that using the function analysis technique can be applied to sole source procurement and 11 (representing 19.6 percent) of the respondent also strongly agreed. On the contrary, 3 (representing 5.4 percent) disagreed while 14 (representing 25.0 percent) remained neutral. With a mean score of 3.84 and a standard deviation of 0.804, it can be inferred that, on the average, respondents agreed that using the function analysis technique is relevant in sole source procurement.

In sum, the respondents were of the view that all the value management principles such as pre-study activities, having a job plan, information gathering activities, function analysis activities, evaluation activities, development activities, implementation activities, follow-up activities, having an independent facilitator, participatory problem solving and using the function analysis technique can be applied to sole source procurement in Ghana Highway Authority.

The result above confirms the position that value management principles can be applied in several practice areas including the area of procurement. According to Alazemi (2011) value management principles have been applied to a wide variety of subject areas, including industrial or consumer products, manufacturing processes, business planning, construction projects, business procedures and in the services sector.

Value management principles	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Mean	Std. Deviation
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent		
Pre-study activities	2	3.6	7	12.5	-	-	26	46.4	21	37.5	4.02	1.104
Have a job plan	-	-	7	12.5	2	3.6	28	50.0	19	33.9	4.05	0.942
Information gathering activities	-	-	4	7.1	6	10.7	27	48.2	19	33.9	4.09	0.859
Function analysis activities	-	-	-	-	16	28.6	29	51.8	11	19.6	3.91	0.695
Creative analysis activities	3	5.4	-	-	15	26.8	28	50.0	10	17.9	3.75	0.939
Evaluation activities	-	-	6	10.7	6	10.7	21	37.5	23	41.1	4.09	0.978
Development activities	3	5.4	7	12.5	13	23.2	19	33.9	14	25.0	3.61	1.155
Presentation activities	6	10.7	4	7.1	13	23.2	22	39.3	11	19.6	3.50	1.206
Implementation activities	3	5.4	-	-	2	3.6	31	55.4	20	35.7	4.16	0.733
Follow-up activities	-	-	3	5.4	2	3.6	34	60.7	17	30.4	4.16	0.733
Having a independent facilitator	2	3.6	3	5.4	12	21.4	29	51.8	10	17.9	3.75	0.939
Participatory problem solving	-	-	-	-	12	21.4	27	48.2	17	30.4	4.09	0.721
Using the function analysis technique	-	-	3	5.4	14	25.0	28	50.0	11	19.6	3.84	0.804

Table 4.4: Value Management Principles applied to sole source procurement

Source: Field work (2015)

4.4 Value Management Principles that Promote Value for Money in Sole Source

Procurement

This section seeks to find out whether value management ensure value-for- money. It also attempts to examine which value management principles could promote value for money in sole sourcing procurement. When respondents were asked if value management ensures value-for-money, majority of the respondents representing 89.3 percent responded in the affirmative (that is "Yes") while 5.4 percent of them responded in the negative (that is "No"). The remaining 5.4 percent did not know if value management ensures value-for-money. Based on the responses provided, it is clear that value management ensures value-for-money. This result is consistent with the findings of Leeuw (2001) who noted that value management promotes adaptability/flexibility in construction works, ensures value-for-money for clients, enhances competitive edge and generally lead to quality performance in construction projects.
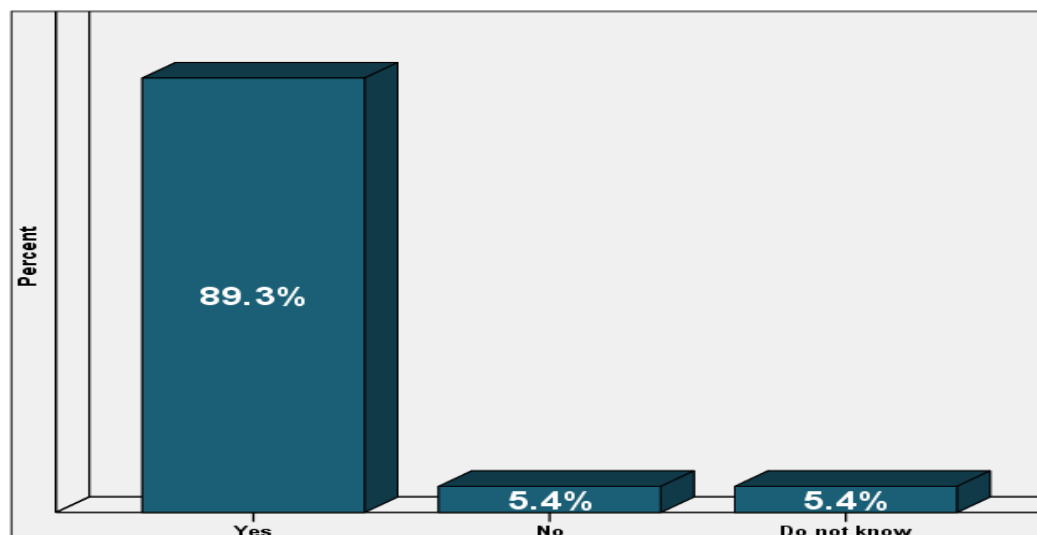

Figure 4.4: Value Management promotes Value-for-Money in Procurement

Source: Field work (2015)

4.5   Challenges in Integrating Value Management Principles in Sole Source

      Procurement

This section seeks to identify challenges faced in integrating value management principles in sole source procurement. In an attempt to identify the challenges that could hinder the implementation of value management principles in sole source procurement, the relative importance index was employed. The relative importance index and ranks of challenges by respondents are presented in Table 4.6.

Based on the ranking (R) of the weighted average of the Relative Importance Indices (RII), it was observed that the absence of support from those in authority was the main challenge that could hinder the implementation of value management principles in sole source procurement (RII=0.844). This was followed by the poor understanding of the methodology ((RII=0.790), lack of trained independent facilitators (RII=0.781), lack of time to go through the various phases of value management (RII=0.768) and the absence of encouraging reason to apply value management (RII=0.746).

The main challenge identified was consistent with the findings of Cheah and Ting (2005). Their findings revealed that the absence of support from those in authority impedes the successful implementation of value management principle in sole sourcing. The findings on poor understanding of the methodology as another challenge in the implementation of value management principles in sole source was consistent with Cheah and Ting (2005) findings. Finally, the findings on the lack of time to go through the various phases of value management and the absence of encouraging reason to apply value management was in congruent with the findings of Cheah and Ting (2005).

The least ranked challenges were staff resistance to change (RII=0.383), inflexibility in contractual provisions (RII=0.576), lack of transparency and economy (RII=0.585) and preference for traditional cost control methods (RII=0.625). Staff resistance to change was ranked least suggesting that it will not hinder the implementation of value management principles in sole source procurement. This finding is however in sharp contrast with the findings of Shublaq (2008) who found that resistance to change (as a natural and instinctive reaction to anything new) is a challenge to the implementation of value management principles.

Table 4.5: Challenges that could hinder the implementation of value management

Statement	RII	Rank
The absence of support from those in authority (the ministry and department)	0.844	1
Poor understanding of the methodology	0.790	2
Lack of trained independent facilitators	0.781	3
Lack to time to go through the various phases of Value management	0.768	4
Absence of encouraging reason to apply VM	0.746	5
Lack of clear vision and understanding value management to sole source procurement	0.656	6
Preference for traditional cost control methods	0.625	7
Lack of Transparency and economy	0.585	8
Inflexibility in contractual provisions	0.576	9
Staff resistance to change	0.383	10
Lack of teamwork in GHA	0.371	11

Source: Field work (2015)

CHAPTER FIVE
SUMMARY OF FINDING, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This section covers the summary of findings, conclusions drawn and the recommendations for policy action. The recommendations also includes those made for further research into the subject matter of focus in this study. The conclusion assesses to what extent the objectives of the study have been achieved.

5.2 Summary of Findings

It was evident from the analysis in chapter four that GHA undertakes sole source procurement as approximately 91% of the respondents were alluded to this. With this overwhelming response, one would have expected that GHA would implement all the VM principles in undertaking sole source procurement but this was not identified as the case. Accordingly, respondents indicated that only three VM activities - having a job plan, pre-study analysis and implementation analysis are undertaken while information, function, evaluation, presentation and development analyses are largely not done.

As to whether sole source procurement impedes value for money in GHA's procurement, 67.9% were affirmative with the most important being the lack of advertisements for expressions of interest for consulting services, the lack of a national or international competitive tender for Works Contract, lack of competition, purchasing of urgently needed goods and the lack of planned, budgeted bids being identified as the highest contributory factors in a descending order.

The second objective of the study was to identify which Value Management Principles could be applied to Sole Source Procurement in GHA, especially considering that only three are so far implemented. Again, respondents were overwhelming in their response that VM could be applied in sole source procurement. The respondents were convinced that all the VM principles, such as, pre-study activities, having a job plan, information gathering activities, function analysis activities, evaluation activities, development activities, implementation activities, follow-up activities, having an independent facilitator, participatory problem solving and using the function analysis technique can be applied to sole source procurement in GHA. The results confirmed the findings of Alazemi (2011).

In the survey, approximately 89% of the respondents indicated that VM ensures value-for-money in GHA operations, confirming the views of Leeuw (2001). It was confirmed that the independent variables selected (i.e., pre-study activities, job plan, information gathering activities, function analysis activities, creative analysis, development activities, presentation activities, implementation activities, follow-up activities, independent facilitator, participatory problem solving and function analysis technique) have a positive relationship on sole source procurement, hence value for money in GHA sole source procurement. Approximately 50% of the variation in the sole source procurement can be accounted for by these independent variables leading to the conclusion that VM principles effectively promote value for money in sole source procurement.

In a descending order, it was revealed that the most important challenges in implementing VM in sole source procurement in GHA operations are lack of management support in implementation value management, the poor understanding of the VM methodology, lack of trained independent facilitators, lack of time to go through the various phases of VM and the absence of encouraging reason to apply VM. These confirm the findings of Cheah and Ting (2005). However, relative to those listed above, the following challenges were not seen as significant: staff resistance to change, inflexibility in contractual provisions, lack of transparency and economy and preference for traditional cost control methods. This finding is contrary to those made by Shublaq (2008).

5.3 Conclusions

The study makes the following conclusions:

- Theoretically, the GHA practices sole sourcing in its sole source procurement but this is not done practically. It was explained that the very nature of sole source procurement makes its practical integration with VM a difficult undertaking. In spite of this obvious challenge, three VM activities are practiced by the GHA. These are having a job plan, pre-study analysis and implementation analysis.

- Value-for-money in sole source procurement is not enhanced as a result of the lack of practice of VM in GHA. Though the main motive for the introduction of the Public Procurement Act, the Procurement Board and procurement specialist in most ministries, department and agencies is to ensure the government and its agencies get value-for-money during procurement exercises, this objective is

gradually hindered by the steady increase in the practice of sole source procurement and the lack of proven check on the practice such as VM. Thus, VM has proven beneficial in other jurisdiction as a tool that ensures organisations get value for money in its operations but such benefits do not accrue in GHA's sole source procurement.

- The important variables that conspire to impede the practice of VM towards enhancing GHA's operational efficiency and getting value-for-money are the lack of advertisements for expressions of interest for consulting services while undertaking sole source procurement, lack of a national or international competitive tender, lack of competition, purchasing of urgently needed goods and the lack of planned, budgeted bids.

- All the VM stages can be applied in sole source procurement at the GHA. These include stages that have been termed as follows: pre-study activities, having a job plan, information gathering activities, function analysis activities, evaluation activities, development activities, implementation activities, follow-up activities, having an independent facilitator, participatory problem solving and using the function analysis technique can be applied to sole source procurement in GHA. The integration of VM principles into the practice of sole source procurement is however possible when if the management of GHA shows that they are committed to achieving value for money in its procurement exercises. Once such a motivation exist, implementing VM in its sole source procurement becomes possible.

- It was also confirmed that the independent variables selected (i.e., pre-study activities, job plan, information gathering activities, function analysis activities, creative analysis, development activities, presentation activities, implementation activities, follow-up activities, independent facilitator, participatory problem solving and function analysis technique) have a positive relationship on sole source procurement, hence value for money in GHA sole source procurement.

- There are teething challenges that must be overcomed before VM can be implemented in GHA. This is not surprising considering that there are hurdles that must be overcome before a shift in operations in any endeavour is possible. Thus far, the major challenges faced in integrating VM in GHA's sole source procurement are the lack of management support in implementation value management, the poor understanding of the VM methodology, lack of trained independent facilitators, lack of time to go through the various phases of VM and the absence of encouraging reason to apply VM. Staff resistance to change, inflexibility in contractual provisions, lack of transparency and economy and preference for traditional cost control methods were not seen as significant challenges, contrary to literature evidence.

5.4 Recommendations

Based on the summary of the study and the conclusions made, the following recommendations suggested to GHA policy action. That is, these recommendations could be incorporated in the organisation's policy and implemented to improve VM in their outfit:

- GHA managers should show by action and words that they are interested in the implementation of VM in all procurement activities of the institution. This should start with the ardent promotion of VM in sole source procurements which could later be broadened to other procurement activities.

- Managers of GHA should institute training programmes designed to educate and equip their employees on the VM principles and factors towards equipping them for the eventual implementation of VM in GHA operations.

- GHA should integrate all the components of VM into its sole source procurement to enhance value-for-money.

- GHA should establish a research unit to investigate into the WM concept and make recommendations to the mother Ministry (Ministry of Roads and Highway) for adoption as a policy.

- Various seminars should be organised by higher institutions like KNUST to professional bodies to champion the concept of VM and also organise short courses to train independent facilitators has been practice in other jurisdiction.

- Time and resources did not allow the researcher to investigate into a project specific which would have come out with practical data as indicated in the Study limitation, I therefore recommend for further research into the subject matter.

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APPENDIX

APPENDIX ONE - QUESTIONNAIRE

<u>**THE ROLE OF VALUE MANAGEMENT IN SOLE SOURCING METHOD OF PROCUREMENT – A CASE STUDY OF GHANA HIGHWAY AUTHORITY (GHA)**</u>

Dear Respondent

My name is Raymond Owusu-Nanah, an MSc Student of Kwame Nkrumah University of Science and Technology (KNUST). In partial fulfillment for the award of the master's degree, am conducting an academic query on the above subject matter. This questionnaire is to solicit information towards this purpose and I will appreciate it, if you will take some time off your busy schedule to respond to these questions. Any information provided will be used solely for academic work and will be treated with the utmost confidentiality. In case you have any issues you want to clarify, you can reach me on 0501259062 or 0246243490

Thank you.

A: Demographic information

1. Gender   [ ] Male   [ ] Female

2. Age   [ ] 20-29   [ ] 30-39   [ ] 40-49   [ ] 50-59   [ ] Above 60

3. Educational Background: Diploma/HND [ ]   Bachelor's Degree [ ]
    Master's Degree [ ]   Doctorate [ ] Professional Certification [ ]

4. How long have you worked in the Ghana Highway Authority?
    Below 3 years [ ] B/n 4 to 6 years [ ] B/n 7 to 10 years [ ] Above 11 years

5. What is your occupation in Ghana Highway Authority?
    Quantity Surveyor [ ]   Civil Engineer [ ]   Project Manager [ ]   Other Profession [ ]

6. Briefly describe what your role is?
    …………………………………………………………………………………

………………………………………………………………………………………………

……………………………………………………………………………………………….

B: Aspects of Sole Source Procurement that Impede the Achievement of Value Money

7. Does the GHA undertake sole source procurement?   Yes [ ]   No [ ]   Do not know [ ]

8. Indicate whether GHA undertake the following activities as part of its operational project set-up?

Activity	Yes	No	Do not know
Having a job plan			
Pre-study analysis			
Information analysis			
Function analysis			
Evaluation analysis			
Presentation analysis			
Development analysis			
Implementation Analysis			

9. Does sole source procurement impede value-for-money in GHA's procurement process?   Yes [ ]   No [ ]   Do not know [ ]

10. Indicate the extent of your agreement or otherwise with the following statements:

NB: Value for money refers to a situation where project outcome can be equated to the investment made or where a project is considered worth the investment made to bring it forth.

1=strongly disagree; 2=disagree; 3=neutral; 4=agree and 5=strongly agree

Aspects of Sole Source that Impede Value for Money	1	2	3	4	5
Lack of competition					
Purchasing of urgently needed goods					
Lack of pre-qualification					
Lack of a national or international competitive tender					
Lack of advertisements for expressions of interest for consulting services					
Lack of least cost selection					
Lack of price quotations					
Lack of selection based on Quality and Cost base					
Lack of planned, budgeted nor have opened bids					

C: Value Management Principles Applied to Sole Source Procurement in GHA

11. Can value management be applied to sole source procurement in the GHA?

[ ] Yes   [ ] No   [ ] Do not know

12. Indicate the extent of your agreement or otherwise with the applicability of the following value engineering principles to sole source activities:

Scale: 1=strongly disagree; 2=disagree; 3=neutral; 4=agree and 5=strongly agree

Value Management Principles	1	2	3	4	5
Pre-study activities					
Have a job plan					
Information gathering activities					
Function analysis activities					
Creative analysis activities					
Evaluation activities					
Development activities					
Presentation activities					
Implementation activities					
Follow-up activities					
Having a independent facilitator					
Participatory problem solving					
Using the Function Analysis Technique					

D: Value Management Principles that could Promote Value for Money in Sole Sourcing Procurement

13. Can value management ensure value-for-money in GHA's procurement?

[ ] Yes   [ ] No   [ ] Do not know

14. If your answered "Yes" in Question 11 above, indicate to what extent the various Value Management principles could lead to value for money using the scale below:

Scale: 1=strongly disagree; 2=disagree; 3=neutral; 4=agree and 5=strongly agree

Value Management Principles	1	2	3	4	5
Pre-study activities					
Have a job plan					
Information gathering activities (ie, information of bidders and other procurement activities)					
Function analysis activities					
Creative analysis activities					
Evaluation activities					
Development activities					
Presentation activities					
Implementation activities					
Follow-up activities					
Having an independent facilitator					
Participatory problem solving					
Using the Function Analysis Technique					

E: Challenges in Integrating Value Management Principles in Sole Source Procurement

15. Indicate what challenges that are likely to be faced in the value management activities listed below. [you can continue at the back of the questionnaire if the space provided here is not enough]

Value Management Principles	Challenge
Pre-study activities	
Have a job plan	
Information gathering activities (i.e., information of bidders and other procurement activities)	
Function analysis activities	
Creative analysis activities	
Evaluation activities	
Development activities	
Presentation activities	
Implementation activities	
Follow-up activities	
Having an independent facilitator	
Participatory problem solving	
Using the Function Analysis Technique	

16. If "Yes", then indicate to what extent these challenges could hinder the implementation of value management in GHA's sole source procurement.
1=strongly disagree; 2=disagree; 3=neutral; 4=agree and 5=strongly agree

Statement	1	2	3	4	5
Staff resistance to change					
Lack of trained independent facilitators					
Lack of clear vision and understanding value management to sole source procurement					
Absence of encouraging reason to apply VM					
Inflexibility in contractual provisions					
The absence of support from those in authority (the ministry and department)					
poor understanding of the methodology					
Lack of teamwork in GHA					
Lack of Transparency and economy					
Preference for traditional cost control methods					
Lack to time to go through the various phases of Value management					

17. Indicate how these challenges can be overcome?

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Thank you!!