

**AN ASSESSMENT OF THE NIGERIAN CONSTRUCTION INDUSTRY'S  
READINESS TO ADOPT VALUE MANAGEMENT PROCESS IN  
EFFECTIVE PROJECT DELIVERY**

**BY**

**UMAR AMINU HAYATU, BSc QS (ABU) 2008  
(M.Sc/Env-Des/3361/2009-2010)**

**DEPARTMENT OF QUANTITY SURVEYING,  
FACULTY OF ENVIRONMENTAL DESIGN,  
AHMADU BELLO UNIVERSITY, ZARIA.**

**JUNE, 2015**

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**Umar Aminu HAYATU, BSc QS (ABU) 2008  
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**DEPARTMENT OF QUANTITY SURVEYING,  
FACULTY OF ENVIRONMENTAL DESIGN,  
AHMADU BELLO UNIVERSITY, ZARIA.**

**JUNE, 2015**

## **DECLARATION**

I declare that the work in this Dissertation entitled: ‘An assessment of the Nigerian Construction Industry’s Readiness to adopt Value Management Process in effective project delivery’ has been carried out by me in the Department of Quantity Surveying, under the supervision of Dr. Y. G. Musa-Haddary and Dr. Y. M. Ibrahim. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this dissertation was previously presented for another Degree or Diploma at this or any other Institution.

Umar Aminu Hayatu

(M.Sc/Env-Des/3361/2009-2010)

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Signature & Date

## CERTIFICATION

This project dissertation titled ‘AN ASSESSMENT OF THE NIGERIAN CONSTRUCTION INDUSTRY’S READINESS TO ADOPT VALUE MANAGEMENT PROCESS IN EFFECTIVE PROJECT DELIVERY’ meets the regulations governing the award of the degree of M.Sc. Project Management of Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation.

Dr. Y. G. Musa-Haddary

\_\_\_\_\_  
Chairman, Supervisory Committee

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Dr. Y. M. Ibrahim

\_\_\_\_\_  
Member, Supervisory Committee

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Dr. Y. M. Ibrahim

\_\_\_\_\_  
Head of Department

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Prof. A. Z. Hassan

\_\_\_\_\_  
Dean, School of Postgraduate Studies

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## **DEDICATION**

This work is dedicated to my caring and beloved parents, Alhaji Aminu Hayatu and Hajiya Ruqayya Aminu Hayatu.

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All praise is to Almighty Allah for the grace he has given me to carry out and complete this project study.

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## **ABSTRACT**

Value management is widely accepted as a technique in achieving value for money. In accordance with the stipulation of the Public Procurement Act in Nigeria that value for money practices should be followed in procuring public assets and services, this study aims to assess the Nigerian construction industry's readiness to adopt value management process. Through a survey, a total number of 117 semi-structured questionnaires were administered amongst practicing quantity surveying firms involved in construction projects in Nigeria. A total number of 70 usable responses were analysed and the results evaluated based on the four aspects (environment, people, process, and issues/information) of the requirements for value management identified from literature. Descriptive analysis was used to determine the level of existence of the requirements in the industry using percentages, mean and standard deviation. The results reveal that the Nigerian construction industry can adopt value management with little adjustments to current practice with the overall mean for all the four aspects standing at 3.34 (i.e. moderate level). The findings also revealed that the key barriers to the adoption of value management are lack of value management qualified practitioners, lack of commitment to implement value management, lack of time due to rushed designs and difficulties in the involvement of all key stakeholders in project processes. This calls for efforts to be geared towards mitigating these barriers. Therefore, the study recommends that there is the need for adequate awareness on the benefits of value management to all stakeholders. Also, Organisations should review their techniques and processes from time to time for improvement and also put in place a change management strategy that would enhance adoption of newly introduced techniques like value management.

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## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the Study

Value management practice is not new; its origin could be traced back to the days of World War II when it was introduced into the American manufacturing industry even though it was then referred to as Value Engineering (Cheah and Ting, 2005). Value Engineering was introduced to the construction industry by the United States Department of Defense and Navy in 1960. According to Kelly et al (2004), value management practice has been adopted by several countries including United Kingdom, China and Australia. Value management is a structured, organized team approach to identifying the functions of a project, product, or service with recognized techniques and providing the necessary functions to meet the required performance at the lowest overall cost (SAVE International, 2001). Although some schools of thoughts tend to distinguish value management from other relevant terms such as value engineering and value analysis, it is more widely accepted that the term value management can be used to represent other related value methodologies (Shen and Liu, 2003).

The construction industry plays a vital role in Nigeria's economic growth and development. It is also responsible for a large portion of total fixed capital investments (Omole, 2000). However, the Nigerian construction industry can easily be described as the 'sleeping giant' within its continental neighborhood in terms of service delivery and satisfying the needs of its clients (Kolo and Ibrahim, 2010). The Nigerian Construction Industry is also responsible for employing approximately 8 million people, having a population of approximately 140 million and this represents approximately 20% of Nigeria's workforce (National Bureau of Statistics, 2006 cited in Kolo and Ibrahim, 2010), perhaps, making it the largest employer of construction labour in Africa. Despite

its massiveness, Nigerian construction industry has severally been described as being unable to deliver (Kolo and Ibrahim, 2010). Furthermore, many clients experience difficulties at the very earliest stages of the construction project life cycle in producing a robust project strategy, not least a ‘brief’ (Latham, 2004). Dallas (2006) notes that a successful project of any type requires that the outcome is clearly defined (requirements) and communicated to those delivering the project (the team). The researcher further noted that value management addresses this element. The utilisation of value management brings substantial benefits for promoting sustainable construction principles. The principles and techniques of value management can provide the required quality to realise an optimal whole life cost and life-cycle assessment during the process of developing a project (Al-Yami and Price, 2006a). Al-Yami and Price (2006b) in another research stated that Value Management approach offers a crucial method for the client to achieve a better built environment and good chance to encourage upgrading in the construction process. They further stated that the essence of optimal usage is strongly related with the philosophy of Value Management, which is applied to satisfy value for money in building and infrastructure projects. Value management is a very good tool for breaking existing perceptions, to force people to take a fresh approach to problem solving and assisting in setting out tasks and objectives with value for money at the front of their thinking (Male, 1998).

## **1.2 Statement of Research Problem**

The Nigerian Construction Industry is characterized with lack of capacity to deliver optimally as a result of poor service delivery which creates dissatisfaction amongst clients according to Omole(2000) and Ajator(2004). In 2007, the Federal Government of Nigeria stipulated that procurement of public assets and services must be through the application of value for money standards and practices in order to improve

service delivery. Value Management has been adopted by public sectors in many countries in order to optimize public projects, to ensure that they achieve their objectives and to achieve value for money invested. However, the Nigerian construction industry is yet to fully embrace value management techniques despite its advocacy. It is in view of this that the study was carried out to assess the readiness of the Nigerian Construction Industry with a view to achieve value for money in project delivery by finding out if the requirements for its adoption are in place.

### **1.3 Need for the study**

To improve service delivery through the application of value for money standards in the Nigerian construction industry as contained in the Public Procurement Act (PPA) 2007, there is the need to adopt value management as it is at the forefront for achieving and enhancing value for money. However, two years after the Federal Government Act, Oke and Ogunsemi (2009) observed that value management has not been fully embraced in the Nigerian construction Industry. Kolo and Ibrahim (2010) conducted a theoretical research where they recommended an empirical-based research to determine how adoptable value management is in the Nigerian construction industry. Thus, the need to investigate the readiness to adopt value management in Nigeria becomes of paramount importance so as to provide an understanding as to why value management is yet to be fully embraced and also provide a guide on the necessary steps for its adoption in the Nigerian Construction Industry.

### **1.4 Aim and Objectives**

#### **1.4.1 Aim**

The aim of this research is to assess the readiness to adopt value management in the Nigerian Construction Industry with a view to improve service delivery.

## **1.4.2 Objectives**

The objectives of this study are:

- i) To identify the requirements for the adoption of value management.
- ii) To appraise the understanding of professionals in the Nigerian construction industry on value management.
- iii) To appraise the perceived barriers to adopting value management.
- iv) To determine the industry's readiness to adopt value management.

## **1.5 Scope and Limitation**

### **1.5.1 `Scope**

The study assesses the readiness of the Nigerian construction industry to adopt value management based on the Quantity Surveyor's perspective. This is because a research conducted by Ellis, *et al.* (2005) demonstrated that quantity surveyors from leading UK quantity surveying firms were found to demonstrate ability and skills necessary to act as facilitators in value management processes. Adetola (2001) also stated that the re-directioning of the QS practice in Nigeria is more of value and wealth generation through cost and financial engineering rather than preparation of bills of quantities and financial statements. Moreover, Quantity surveyors have been linked to the discipline of value management right from its inception (Oke & Ogunsemi, 2009). Recently, the Nigerian Institute of Quantity Surveyors and the Quantity Surveyors Registration Board of Nigeria are giving special attention to ensuring value for money in construction projects through awareness in Workshops and Seminars since Quantity Surveyors are the professionals saddled with the responsibility of cost optimisation in construction projects which plays a role in value management. It is in line with this that the study considered Quantity Surveying firms. The areas covered are Abuja, Kaduna and Kano.

### **1.5.2 Limitation**

Data from case studies on value management within Nigeria is sparse. This is because it is a relatively new concept in Nigeria. Therefore, this is an imposed limitation to the research work. There is the tendency to receive biased information from the respondents which is common to any self-assessment exercise. This may affect the validity of the results. To mitigate the effect, experienced professionals were involved to obtain quality and reliable responses.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 History and Development of Value Management

Value management originated from value analysis, which was developed by Lawrence Miles during the Second World War. Though there is a difference between value management and other terms such as value engineering and value analysis, value management in the construction industry is increasingly seen as the approach to delineate the whole process of improving a project value from concept to operation. As a result, many studies see the terms of value engineering and value analysis as a subset of the generic approach of value management (Al-yami and Price, 2006b)

The origin of value analysis/engineering can be traced back to the days of World War II when there was a material shortage problem in the manufacturing sector due to an increased consumption for war purposes (Cheah and Ting, 2004). Lawrence D. Miles, an electrical engineer who was then assigned to the purchasing department of General Electric Company, started finding ways to alleviate the material shortage problem in the company's production. To accommodate the constraint, he focused on functions that a product was meant to perform and experimented with alternatives to achieve the same functions without compromising quality. Although the main emphasis was not cost reduction, this came as a by-product. With this in mind, Lawrence Miles designed a structured process necessary to capture the exact function of the component/raw material and then determine using innovative means, the best material/components to perform such a function at a lower cost (SAVE, 2007). This process was called Value Analysis.

As the practice of Value analysis developed, there was a shift from the focus on studying the functions of components/raw materials to improving the conceptual designs of component/materials. This is expressed through the widening scope of value analysis

which not only involves the identification and selection of raw materials based on function and price, but also the improvement of the design of products based on the functions it is expected to provide. Furthermore, Engineers were increasingly being employed to carry out the Value Analysis process. This prompted a change in the use of the term Value Analysis to the adoption of the term Value Engineering (SAVE, 2007). The Society of American Value Engineers (S.A.V.E) was established in 1959, and it established the use of Value Engineering as the preferred term for describing the process instead of Value analysis in the United States of America (Kelly et al, 2004).

Construction projects involve several professionals and organizations coming together to produce a construction product based on the objectives and goals of the client. The value engineering process could lead to the achievement of project goals at reduced costs. Concurrent with the wide spread popularity, the process of value engineering has undergone improvements through the integration of several tools and techniques aimed at making the process more effective, efficient, flexible and more attractive to stakeholders internationally in both the private and public sectors (SAVE, 2007).

The use of the term “Value Management” as against “Value Engineering” began in the European manufacturing industries and was adopted in the SPRINT program (Strategic Programme for Innovation and Technology Transfer) (Kelly et al, 2004). It is a term commonly used by professionals globally especially in Europe, Africa and Australia to describe the process of value enhancement in projects (Kelly et al, 2004).

## **2.2 The Concept of Value Management**

### **2.2.1 Value**

To understand the concept of value management better, there is the need to first of all understand the concept of value. Value is defined as the quantum of needs achieved at minimum cost. The equation below describes how value is achieved. Therefore the

greater the satisfaction of needs and the more minimal the cost, the greater the value achieved (Value Management Practice Guidelines, 2009)

$$\text{Value} = \frac{\text{Satisfaction of Needs i.e. what is necessary for the user (Outcomes)}}{\text{Use of Resources i.e. everything required to satisfy needs (Cost)}}$$

Furthermore, the Institute of Value Management (2008) opines that the concept of value relies on the relationship between the satisfaction of many differing needs and the resources used in doing so; the fewer the resources used or the greater the satisfaction of needs, the greater the value. Stakeholders may hold differing views of what represents value and the aim of value management is to reconcile these differences to enable an organization achieve the greatest progress towards its set goals with the use of minimum resources.

### **2.2.2 Value management**

Various researchers and scholars have defined value management in different ways. Following are some of the definitions of value management:

- Male et al (1998) defined value management as a proactive, creative, problem-solving or problem-seeking service which maximises the functional value of a project by managing its development from concept to use. The process uses structured, team-oriented exercises that make and appraise existing or generated solutions to a problem by reference to the value requirements of the client.
- Kelly and Male (2004) and Odeyinka (2006) defined value management as a service that maximise the functional value of a project by managing its development from concept to use through the audit of all decisions against a value system determined by the client.
- Office of Government Commerce (2007) defined value management as a well established methodology for defining and maximizing value for money.

- The Institute of Value management UK (2008) defined value management as a style of management particularly dedicated to motivate people, develop skills and promote synergies and innovation, with the aim of maximizing the overall performance of an organization.
- Society of American Value Engineers (SAVE) (2008) defined the concept of value management as a systematic, multi-disciplinary effort directed towards analyzing the functions of projects for the purpose of achieving the best value at the lowest overall life cycle cost.
- Oke and Ogunsemi (2011) defined value management as a systematic and multi-disciplinary process directed towards analyzing the functions of projects from its inception to completion and commissioning (through auditing or examination) for the purpose of achieving best value and return on investment at lowest possible overall life cycle cost.

All these definitions point to the fact that value management encourages team work by improving working relationship among the team while at the same time improves service delivery by achieving better value for money for the projects.

### **2.2.3 Value management and Value for money**

Value for money has been defined by Office of Government Commerce (2003) as the optimum combination of whole-life cost and quality to meet the user's requirement. Several methodologies have evolved in achieving and enhancing value for money in construction, but value management is at the forefront thereby receiving special attention due to its added advantage of imparting on strategic decisions right from the earliest stages of project cycle (Male et al., 1998). In line with this, the Federal Government of Nigeria also followed suit by stipulating that all public procurement must follow the path of value for money in its procedures and practices as contained in the Public

Procurement Act 2007 (ICRC, 2009). Value management has over the years evolved to be a widely accepted methodology for achieving value for money (Kelly, Male, & Graham, 2004) and this indicates a strong relationship between the two.

#### **2.2.4 Value management and Value engineering**

According to Society of American Value Engineers (2007), Value management can be used interchangeably with the terms Value Engineering, Value Analysis and Value Methodology (a more recent term adopted by the Society of American Value Engineers) to describe the whole process of utilizing a team based approach to ensure client value optimization at optimum costs; throughout the project from inception to completion and use of the finished product. Although it tends to prefer the use of Value Methodology and Value engineering to the use of value management to describe the process. The Building Research Establishment (B.R.E) agrees with the stance taken by S.A.V.E but it prefers the adoption of the term value management to describe the process (Kelly et al, 2004). CIRIA (Construction Industry Research and Information Association) and BSRIA (Building Service Research and Information Association) view value management as the term which covers the overall process but at the same time differentiates between value management and value engineering by indicating that value management is more of a strategic process and value engineering is a technical process (Kelly et al, 2004). Green (1994) contributed to this view by adding that value management is more of a soft thinking process which ensures that the project objectives are clearly identified and understood by the value team in their efforts towards maximizing the values achievable from the project (Thyssen et al., 2008). This supports the use of value management in the strategic phase of the process. On the other hand, Green (1994) views value engineering as more of a hard thinking process which seeks to determine alternative solutions to the problems identified during the value management

study. It involves finding the best solution at lower costs (Thyssen et al., 2008). Value management begins from its application at the strategic phase of the project. That is the stage in which the need for the project is justified and its scope and objectives are well understood by the value team. According to the lever of quality developed by Winston Davies of Jaguar (Kelly et al, 2004), it is easier to achieve a higher value in the project when value management is applied at the strategic phase of the project. This is because this stage requires identification and understanding of the clients' needs and objectives in the project; and making plans of how best to achieve those needs and objectives at optimum costs.

### **2.3 Value management in the Construction Industry**

Latham (1994) and Egan (1998) highlighted some problems facing the construction industry in the UK which are commonly shared by construction industries worldwide. It also challenged the construction industry to change its mindset and attitudes towards the provision of construction assets and motivates the construction industry to adopt new concepts and utilize innovative techniques towards improving the performance of the industry.

Problems facing the construction industry include the fact that construction projects are not completed on time, within budget and to the required quality and therefore clients of the construction industry are not satisfied with the services provided by the industry (Aibunu, 2008; Olatunji, 2006). Other problems facing the construction industry includes the lack of client involvement in projects, the use of traditional procurement routes, lack of attention to client needs, conflicts existing in construction projects, high costs of construction, low profit margins in construction companies/firms, health hazards and wastes, high risks, lack of trust among stakeholders of the industry leading to disputes and claims, poor communication and lack of research and innovation

among a host of other problems were seen to limit the efficiency and effectiveness of the construction industry (Latham, 1994; Egan, 1998; National Public Works Conference, 1990; Fellows and Liu, 2008).

Various researches were undertaken and several concepts were developed in order to improve the efficiency and performance of the construction industry. Such concepts and techniques include the move towards collaborative procurement routes, Pre-qualification, quality assurance, increased education, multi skilling, whole life cycle costing, lean thinking, partnering. Gough (2008) acknowledged that although these concepts improved the performance of the construction industry, some problems still persist; some of these problems include poor communication, lack of trust and unrealistic strategic project objectives and estimates among others. According to Kumaraswamy and Chung (2008), value management will increase the client values when it is involved with integrated and collaborative procurement routes. This is made possible through the utilization of a team based approach in the value management process which can lead to better trust, understanding and communication among the stakeholders in the project. Value management creates a very conducive environment in which collaborative and integrative procurement routes can be formed. It also provides the opportunity to analyse and make decisions concerning the selection of the right procurement route to adopt for a construction project. Value management also makes it possible to create long term relationships and motivates stakeholders to adopt integrative and collaborative procurement routes (Zou et al, 2008; Barton, 2008; Kumaraswamy and Chung, 2008).

Finally, collaborative procurement routes provides for the physical integration of project teams while value management provides for the alignment and integration of strategy, values and objectives. The resulting effect is better value achievement and an

improvement in the overall performance of the construction industry (Zou et al, 2008; Barton, 2008; Kumaraswamy and Chung, 2008).

Project briefing is an activity aimed at making explicit the clients' needs and expectations from a project (Abdulrahman et al, 2007). This is a process which has not been fully utilized in most projects leading to inaccurate project objectives, designs which do not capture the client's needs and expectation and finally failure to achieve the project objectives. Overall project briefing is vital to ensuring client's satisfaction in a project (Wyatt and Smith, 1998; Abdulrahman et al, 2007; Othman et al, 2005; Latham 1994). Value management provides a process which allows for capturing and understanding the client's needs and making such explicit through the project brief (Blyth and Worthington, 2001; Barret and Stanley, 1999; Abdulrahman et al, 2007). Green (1994) contributed to this approach by developing the "Simple Multi-attribute Technique" (SMART) which critically analyses the client needs and objectives in the project which shall lead to the development of a better project brief. Kumaraswamy and Chung (2008) also added to this approach by using value analysis techniques to enhance the values of project briefing. Other value management techniques used in project briefing include Function Analysis and System Techniques (FAST), function tree, Brainstorming etc (Hamilton, 2002).

## **2.4 Features of Value management and the Value management Process**

### **2.4.1 Characteristics/Features of Value Management**

The greatest gains of Value Management have been shown when it is directed towards obtaining maximum value from a total system. The examination of function remains fundamental, however this occurs within the system wide context. It is the systematic analysis of functions, which sets Value Management apart from other approaches to improving value (Value Management Guideline. 2004).

According to the Value management Guideline (2004), Value Management has the following key characteristics:

- a specific methodology
- based upon a creative problem solving approach
- involves key stakeholders in a managed team approach
- focuses on function i.e. what it must do, not what it is
- focuses on achieving value-added solutions
- based upon integration
- focuses on project learning

Also, Bone and Law (2000) identified the following as characteristics of value management practice:

- ❖ It involves structured team-based workshops
- ❖ It employs a range of analytical tools
- ❖ It involves creative brainstorming
- ❖ It is led a qualified value practitioner
- ❖ It follows a structured Job Plan
- ❖ It involves customers
- ❖ It involves suppliers
- ❖ It causes study terms to achieve sustained improvements
- ❖ It generates a clear program of work

#### **2.4.2 Value management process**

The idea of client value optimization is quite clear and can easily be understood but there needs to be a process in place which shall ensure that such values shall be achieved in the project. This process cannot be followed haphazardly, it must be followed sequentially and appropriate steps must be taken to derive the necessary outcomes.

Lawrence Miles developed a value management process which can be used to make explicit client functions in a project and also ensure that best decisions are made with the main aim of achieving the client objectives in the project (Kelly et al, 2004). It is a sequential process developed in order to better manage the client needs and functions by guiding the participants towards achievement of the project goals and objectives (Kelly et al, 2004). The value management process is defined as a “logical sequential approach towards the study of value” (Kelly and Male, 1994). The value management process is undertaken by various professionals selected by the Value manager/Facilitator of the study. The facilitator shall be responsible for guiding the value team and creating a structured process which shall lead to the achievement of the objectives of the value study (SAVE, 2007). This process must also ensure that the values of the client are made explicit and are understood by everyone involved in the process.

The value management team consists of professionals whose skills and relevance to the value study is crucial to its success (Kelly et al, 2004). The value management process consists of three main phases which include the orientation phase (Pre-Workshop), the workshop phase (Job Plan) and the implementation phase (Post Workshop phase) (Kelly et al, 2004).

#### **2.4.2.1 The Orientation phase (Pre-workshop phase)**

This phase of the value study process primarily involves planning and organizing the value management study. It involves obtaining commitments from members of the client organization (preferably the senior managers from the different sectors of the client organization involved in the process) and other stakeholders involved in the study.

Several decisions will have to be made and agreed by the selected members of the client organization and other stakeholders involved. These decisions shall involve methods that will be adopted to ensure that stakeholders are conversant with the process and benefits of

the process (this may include orientation meeting, training and lectures); the amount of time that each of the members will have to commit in order to have a successful process; the information collection and distribution process and responsibilities shared among stakeholders in the process; the definition and clarification of the client's needs and expectations from the study (Kelly et al, 2004). The scope of the study is then produced together with the schedules, objectives, roles and responsibilities of the study and participants of the study (SAVE, 2007).

#### **2.4.2.2 The workshop phase (Job Plan)**

This takes place after the orientation phase. Depending on the value management style adopted by the value manager and the team, the value management process may be combined in certain ways. For example, the orientation phase may be combined with the information stage of the study or the implementation stage may be combined with the feedback stage etc. Never the less, the value management process shall consist of six main stages which must be followed sequentially in order to achieve the objectives of the process. These processes are explained below:

##### **2.4.2.2.1 Information stage**

The primary aim of this stage is to provide knowledge and understanding of the project and client objectives. This stage involves collection of information based on the model described in the orientation phase of the study. The information gathered consist of project information such as project drawings, project costs, project areas which require improvements, client brief, clients objectives, stakeholders (Users, investors, general community and others) needs and objectives in the project, and any other information necessary to ensure full understanding of the client and projects needs and objectives.

##### **2.4.2.2.2 Functional Analysis Stage**

This stage focuses on making explicit the different functions required from the project. In order to identify areas for improving the project, there must be an understanding of the functions which are required from the project. The functions identified are developed and compared with the client needs and objectives in the project. The use of the Function Analysis System Technique (FAST) and Brainstorming will be very helpful in this stage. These methods utilize team approach towards identifying and analyzing project function (SAVE, 2007).

#### **2.4.2.2.3 Creative Stage**

This stage involves the utilization of team effort towards identifying alternative solutions to functions identified in the project (Kelly et al, 2004). The tools which can be utilized for this stage include “brainstorming, Gordon techniques, Nominal group techniques and Synetics” (SAVE, 2007)

#### **2.4.2.2.4 Evaluation Stage**

This stage involves the evaluation of ideas developed in the creative stage of the study. The ideas generated will be analyzed and reduced based on their level of effectiveness and contribution towards improving the value of the project. Other attributes which will be considered in the selection includes cost, risk and the feasibility of the alternatives. Tools used for this process could include T-charts, Value metrics and Life cycle costing (SAVE, 2007).

#### **2.4.2.2.5 Development Stage**

In this stage, the ideas developed in the previous stage shall be further analyzed and developed into alternatives which can be clearly understood by the value team. Its benefits, disadvantages, risks and possible limitations shall be identified, discussed and compared with the other alternatives to determine its level of effectiveness in achieving improved value in the project (SAVE, 2007).

#### **2.4.2.2.6 Presentation Stage**

This stage involves the presentation of value alternatives which have been decided upon by the value management team to the top management and other stakeholders with an interest in the project. This is aimed at ensuring that the stakeholders fully understand the basis for selecting the alternative options and also the provide assurance to the management and increase the confidence that the client's values in the project will be achieved (SAVE, 2007).

#### **2.4.2.3 Implementation and Feedback**

This stage involves the determination of procedures for implementation of value alternatives. It also involves the creation of parameters for monitoring and documenting the value improvement process (SAVE, 2007). Such improvements will then be compared with performance benchmarks in order to determine the success of the process. This stage takes place in the post workshop phase of the study (SAVE, 2007).

### **2.5 Requirements for Value Management**

According to Kolo and Ibrahim (2010), studies on value management have so far concentrated on factors affecting their successful implementation. A review of these studies revealed factors that can also affect the need to implement value management termed as 'requirements for value management' i.e. factors that must be satisfied before value management can be implemented. This, they said, should be viewed differently from the factors that must be met to ensure successful outcome from a value management study i.e. 'requirements of value management'. Some of the broad-based factors identified in literature as cited by them are: available construction programmes, nature of public sector construction client, basis for design and decision-making, working relationships, procurement and contracting strategies (NAO, 2005 cited in Kolo and Ibrahim, 2010); relationship between different partners in terms of communication,

working relationships, ownership and commitment, and team spirit (Lu, 2007 cited in Kumaraswamy & Chung 2008). Others include: defining and pursuing value in terms of value for money, return on investments and reputation; developing ‘network value’ in terms of cost, time, safety and security, good governance, environmental impact, quality and function, legacy, profit, contribution margin, and enhanced business opportunity (Kumaraswamy & Chung, 2008); and profiling the client value system in terms of time, capital cost, operating cost, environment, exchange, flexibility, esteem, comfort and politics (Yu et al., 2006). Furthermore, Kolo and Ibrahim (2010) opined that there are four basic aspects under which requirements for value management can be looked at, namely: people, process, issues and environment. Categorising the aspects based on the definitions, since value management is an approach which should be proactive and creative, it therefore requires inputs from ‘**people**’ who can adequately manage the approach, with adequate and required knowledge and experience to deliver on proactivity and creativity. Being a problem-solving or problem seeking service, value management requires that ‘**issues/information**’ needs to be deliberated upon, which in themselves must possess certain qualities to qualify for consideration. Furthermore, ‘problem-solving’ and ‘make and appraise existing or generated solutions to a problem’, will require the use of some form of ‘**process**’ which will also fulfill the requirements for ‘structured, team-oriented exercises’. The ‘**environment**’ requirement comes into perspective when consideration is given to the need to ‘identify a series of desired outcomes’ by adopting a ‘proactive, creative, problem-solving/seeking service using structured, team-oriented exercises’. The above conception formed the basis of their theoretical research to establish the adoptability of value management in Nigeria. It is in line with this that this research sets out to conduct an empirical research to establish the adoptability of value management in Nigeria.

### **2.5.1 Environment**

The environment requirement has to do with the working environment which allows for an excellent and integrated working relationship between all stakeholders. Collaborative and Integrated team work is highly essential with good and integrated team leadership because for any organisation to function effectively, it requires collaboration and cooperation amongst its members. Moreover, creativity and innovatory input is an essential ingredient especially in challenging situations as this will enhance problem solving by encouraging individual contributions towards finding solutions.

### **2.5.2 People**

These are the clients and the professionals rendering services to them. The people factor is an important factor that can affect an organisation's overall performance because the introduction of any change will affect the workforce within that organisation. It is therefore necessary to ensure the readiness of people in accepting the innovative strategies. Clients must be well focused, committed and capable of undertaking value management. Also, there is the need to have people with adequate and required knowledge and experience to deliver on creativity through innovative interactions for the process to be successful. In addition, open-mindedness in dealing with team members or other stakeholders is essential, and having confidence in the competence of others so as to achieve project objective.

### **2.5.3 Process**

This relates to the series of actions performed in order to realise a project. Process means a practice, a series of actions done for a specific purpose (Emmett, 2005). It also includes the working rules, ethics, and procedures within and between organisations (Ruikar *et al.*, 2006). First, the procurement and contract strategy needs to be appropriate and flexible. Contract provisions should be productive and encourage innovative

solutions. There is the need for appropriate change and process management strategy to ensure smooth introduction of new concepts for improving service delivery. Techniques applied in rendering services to clients must be relevant and not counter-productive.

#### **2.5.4 Issues/Information**

Information to be deliberated upon in order to proffer innovative solutions usually emanate from clients' requirements. Therefore, the information must be sufficient enough without any ambiguity. This will allow for issues like cost of projects, contract durations, value for money, construction programme etc to be clearly spelt out and well defined.

### **2.6 The Nigerian Construction Industry**

All over the world, the construction industry is continually growing. The construction industry in both developed and developing countries may be viewed as that sector of the economy which, through planning, design, construction, maintenance and repair, and operation, transforms various resources into constructed facilities (Isa et al 2013). This industry is mostly concerned with development of civil engineering works and heavy infrastructural provisions (roads, bridges, railways, etc.), residential and commercial real estate and their maintenance therein. Thus, the continual growth can be explained by the dynamisms of development and the need to accommodate social and demographic changes that happen over time. Factors such as migration and urbanization, a rising middle class with their demands for better living conditions (better houses, road networks) and societal needs for social infrastructure all combine to give the sector the need for growth. In Nigeria, organised construction began in the early 1940's with a few foreign companies. The 'oil boom' that followed about 10 years after Independence led to an upsurge in construction and demand for construction services, as the country at that period opened up to foreign and local investments and the obvious needs for infrastructure to drive economic growth. Foreign companies have dominated the industry

since the 60's and 70's generating revenue for government and jobs for the citizenry. However, there have been down sides to this as these companies have been known to import resources and even skilled labour as opposed to using locally manufactured resources and promoting local content. The construction sector has grown over the years, as a result of demands for real estate and housing and the provision of infrastructure to support an increasing population size, the need to open up communities to foster inter-state and inter-regional trade and movement. This loosened up the market for construction and services within the industry, to include even local companies, especially in the construction of commercial and non-commercial real estate.

The Nigerian construction industry contributes about 2% annually to the Gross Domestic Product (Federal Office of Statistics, 1997). Nigerian construction industry is responsible for employing approximately 8 million people in a country having a population of approximately 140million. This represents approximately 20% of Nigeria's workforce (National Bureau of Statistics, 2006). This also shows the level of importance that the Nigerian construction industry plays in the development of the Nigerian economy. Based on the estimate of the Business Monitor International Group (BMI, 2007), the Nigerian construction industry grew at the rate of 20% in 2007. Some analysts may argue that the performance of the industry depends on the level of the Nigerian socio economic development but irrespective of that, the industry can still perform much better even in the present circumstances. Today the construction industry ranks among the lowest in terms of performance. Egan (1998) highlighted that the performance of the construction industry has been overshadowed by that exhibited by the manufacturing industry; this is a fate shared by construction industries worldwide. Nigeria as a developing country suffers from lack of basic infrastructure such as housing, power, water and good roads among others. It needs the services of the construction industry in

providing these infrastructure. The construction industry has to perform much better if it is to fully provide these infrastructure to the national economy. The construction industry provides the means for providing global development especially in the developing countries. The Nigerian construction industry has the potential to become the largest in Africa and fastest growing in the world (Infrastructure report, 2008).

### **2.6.1 Stakeholders of the Nigerian Construction Industry**

The Nigerian construction industry consists of construction companies, professionals/consultants, suppliers and the public/private sector clients. The Nigerian construction industry is quite large and is attractive to foreign companies. Such foreign companies undertake large projects which local construction firms cannot carry out due to lack of finance and expertise.

International construction companies involved in the Nigerian construction industry include Julius Berger Nigeria (JBN), Bouygues Nigeria Ltd (BNL), Borini Prono, Salini Nigeria, Arab contractors etc. Local/Indigenous construction companies also exist and also undertake large construction projects but these are very few.

Nigerian professionals/consultants consist of Architects, Quantity Surveyors, Engineers (Civil/Structural, Electrical, and Mechanical), Project managers, Land and Estate Surveyors etc. Nigeria also has a lot of regulatory bodies responsible for handling certain aspects of the construction industry. For instance, the Bureau for Public Procurement (BPP) controls and regulates the general public procurement processes and also provides general guidance to the private sector professionals regarding procurement of goods and construction works; it has a huge influence on the performance and effectiveness of the Nigerian construction industry. The Nigeria Institute of Quantity Surveyors (NIQS) regulates and controls the quantity surveying professions and membership. The Nigerian Institute of Architects (NIA), the Nigerian Institute of

Builders (NIOB) and the Nigerian Society of Engineers (NSE) also regulates and controls the Architectural, Building, and Engineering professions respectively.

The Nigerian construction industry clients are divided into two main categories; they include the public sector clients and the private sector clients. The public sector clients include all ministries, agencies and other government institutions under the local, state and federal tiers of the Nigerian government. Together, they constitute the largest client of the Nigerian construction industry. The private sector clients consists mainly of home owners, real estate developers, banking institutions, oil companies and other national and international medium and large scale organizations.

### **2.6.2 Procurement methods in the Nigerian Construction Industry**

There are several procurement methods adopted and utilized in the Nigerian construction industry, the most predominant of which is the traditional procurement method (Babatunde et al, 2010). This is based on the fact that the traditional procurement method is preferred for use by government agencies and parastatals as well as private sector clients. According to a research undertaken by Babatunde et al (2010), the reasons for the selection of this procurement method is mostly based on time and cost requirements of the client. Another factor which promotes the use of this procurement method is the availability of information at the strategic phase of the project. This is reflected by the client brief, designs and cost information which is made available to the client at the project inception stage. This influences the client's decision on whether to go on with the project or not.

The Design and Build and public private partnership procurement methods are also used in the Nigerian construction industry (Babatunde et al, 2010). Quality requirements and the nature of the project undertaken were seen as the main reason for selection of such procurement method (Babatunde et al, 2010). Large and sophisticated

projects requiring specialist skills and expertise are more likely to adopt the PPP procurement methods. The Public Private Partnership procurement routes are now increasingly being adopted in Nigeria as against the use of the Design and Build procurement method. The PPP variant most frequently adopted is the Build Operate and Transfer framework (Babatunde et al, 2010). Also, there have been evidences of the use of integrated approaches in procuring some public building and infrastructure. For instance, the concept of BOT and PPP/PFI were both popularised by the FGN during the early 2000 (Kolo and Ibrahim, 2010). The Nigerian Government embraced the PPP approach in 2000 to accelerate active involvement of the private sector. Application of PPPs in Nigeria are becoming increasingly popular for new and maintenance projects and for the management of existing facilities. Two approaches of PPPs in Nigeria are Joint Venture (JV) and Build Operate Transfer (BOT) used for infrastructural projects e.g. roads, tourism, power generation amongst others (Ibrahim, 2007). For instance, Dada et al., (2006) reports that 85% of PPP projects executed by the Lagos State Government were delivered through either JV or BOT. Abuja Property Development Company (APDC) formerly Abuja Investment and Property Development Company (AIPDC) in 2006 awarded contracts over US\$30billion for various projects e.g. development of district markets using BOT, multi-level car parks; 65km metro-rail line, integrated tourism resorts; technology, sporting and commercial facilities; housing and office developments, shopping malls and community centres amongst others (APDC, 2010 cited in Kolo and Ibrahim, 2010).

### **2.6.3 The Nigerian procurement process and the Bureau of Public procurement (BPP)**

The introduction of Public Procurement Reforms in Nigeria followed a World Bank Country Procurement Assessment survey conducted in 1999 which established the

link between poor/weak public procurement procedures and corruption as well as its far reaching negative consequences on national development especially in the area of infrastructural development in Nigeria (BPP, 2007). The Assessment Report revealed that 60k was being lost to underhand practices out of every N1.00 spent by Government and that an average of ten Billion US Dollars (\$10b) was being lost annually due to fraudulent practices in the award and execution of public contracts through inflation of contract cost, lack of procurement plans, poor project prioritization, poor budgeting processes, lack of competition and value for money and other kinds of manipulations of the procurement and contract award processes. In reaction to this, the government of Nigeria passed the Public Procurement Act in 2007 which is aimed at ensuring that procurement in public establishment follows the proper procedures set out or adopted and ordered by it. The result of the Act was the establishment of the Bureau for Public Procurement (BPP); a body established to provide guidance, training, improvement and in general, regulation of the procurement processes adopted by the government establishments, institutions, departments and other entities set up by the constitution of the country (BPP, 2009).

The Bureau for Public Procurement is saddled with the responsibility of ensuring an efficient, transparent and accountable procurement process. One of its main requirements is the achievement of value for money in all procurements undertaken by the public entities (BPP, 2009). It is a body which has a direct influence on the Nigerian construction industry and the procurement processes in the country. The Bureau for Public Procurement also educates the construction professionals and improves the procurement process by adopting newer technology and concepts (BPP, 2009).

The Public Procurement Act 2007 established the Bureau of Public Procurement charged with the responsibility to amongst others, provide Legal and institutional framework and Professional Capacity for public procurement in Nigeria.

The objectives of establishing the Bureau of Public Procurement are to:

- Harmonize existing government policies and practices on public procurement and ensure probity, accountability and transparency in the procurement process;
- Establish pricing standards and benchmarks;
- Ensure the application of fair, competitive, transparent, value-for-money standards and practices for the procurement and disposal of public assets; and
- Attain transparency, competitiveness, cost effectiveness and professionalism in the public sector procurement system.

The Bureau of Public Procurement has the following functions amongst others:

- Formulate the general policies and guidelines relating to public sector procurement for the approval of the Council;
- Publicise and explain the provisions of the procurement act;
- Subject to thresholds as may be set by the Council, certify Federal procurement prior to the award of contract;
- Supervise the implementation of established procurement policies;
- Monitor the prices of tendered items and keep a national database of standard prices;
- Publish the details of major contracts in the procurement journal;
- Publish paper and electronic editions of the procurement journal and maintain an archival system for the procurement journal;
- Maintain a national database of the particulars and classification and categorisation of federal contractors and service providers;
- Collate and maintain in an archival system, all federal procurement plans and information;
- Undertake procurement research and surveys;

- Organise training and development programmes for procurement professionals;
- Periodically review the socio-economic effect of the policies on procurement and advise the Council accordingly;
- Prepare and update standard bidding and contract documents;
- Prevent fraudulent and unfair procurement and where necessary apply administrative sanctions;
- Review the procurement and award of contract procedures of every entity to which the procurement act applies;
- Perform procurement audits and submit such report to the national Assembly bi-annually;
- Introduce, develop, update and maintain related database and technology;
- Establish a single internet portal that shall serve as a primary and definitive source of all information on government procurement containing and displaying all public sector procurement information at all times; and
- Co-ordinate relevant training programs to build institutional capacity.

According to the public procurement policy which is enforced on the Nigerian construction industry, the ministerial and parastatals tender boards handle approvals and prequalification processes of their respective ministry or parastatal. The procurement planning committee handles needs assessment and analysis which must be in line with the strategic objectives of the procuring entity (BPP, 2009), identification and decision on the particular option which best satisfies the identified needs of the procuring entity, determination of the estimated cost of the project and the methods which will ensure successful implementation of the project etc. The procurement planning committee involves several members (financial, technical, managerial and legal members) of the procuring entity in making all necessary decisions, but this process does not utilize the

standard value management process and techniques in carrying out the needs assessment and other objectives of the process. The planning committee creates a list of all known items which can satisfy its needs and then tries to combine these items in such a way that maximum value can be achieved by the procuring entity at a lower cost (BPP, 2009). This aim of the Bureau of public procurement is similar to the value management aims but value management as a whole provides the conceptual and technical means of ensuring that clients' values in projects are achieved. It can be adopted by the BPP in ensuring value for money in all government procurements and especially the construction industry.

#### **2.6.4 Problems facing the Nigerian Construction Industry**

The Nigerian construction industry can easily be described as the 'sleeping giant' within its continental neighbourhood in terms of service delivery and satisfying the needs of its clients (Kolo and Ibrahim, 2010). There are several problems facing the Nigerian construction industry; they include the inability to complete projects on time, within cost and to the required quality; the inability to satisfy clients' needs and confidence; lack of innovation; lack of project/financial planning; high construction wastes and health hazards; lack of skilled manpower; poor management of projects; incomplete client brief; conflicts and litigations; high number of variations; incomplete designs among others (Olatunji, 2006; Aibunu, 2008; Omoregie and Radford, 2006; Fadamiro and Bobadoye, 2007). As observed by Kolo and Ibrahim (2010), there have been several reports of: rush nature of project implementation (Mosaku, 1984; Musa, 1990), inadequate planning and budgetary provisions (Elinwa and Buba, 1993), projects executed at higher sums (Giwa, 1988; Okuwoga, 1998), inefficient and poor service delivery (Aibinu and Jagboro, 2002), abandoned or non-functional facilities and collapsed building (Wahab, 2006). The perennial nature of these traits creates dissatisfaction amongst clients (Omole, 2000; Ajator, 2004).

According to Aibunu (2008), the most important factors necessary to reduce these problems include the need to have complete information and understanding of the client needs in the project; complete designs; proper financial/project planning, proper project monitoring and supervision etc. Other solutions could include the adoption of high quality substitute materials and innovative technologies in construction projects, better training and research into processes and other factors utilized in the construction industry with the aim of improving the overall process of construction and finally the adoption of value management among other concepts which shall ensure an increased effectiveness and efficiency in the construction industry.

## **2.7 Value management and the Nigerian construction Industry**

In line with global trends, the Federal Government of Nigeria stipulated that all public procurement must ensure that value for money techniques are applied in its procedures and practices as contained in the Public Procurement Act (PPA) 2007 (FRN, 2007; ICRC, 2009). And as such, evidence exists of calls for the Nigerian construction industry to adopt Value Management (Omole, 2000; Ajator, 2004; Oke & Ogunsemi, 2009; APDC, 2010) which is a widely accepted methodology for achieving value for money (Kelly et al 2004).

### **2.7.1 Application of Value management in Nigeria**

Kolo and Ibrahim (2010) observed that despite advocacies for the Nigerian construction industry to improve on her service delivery capacities by bettering value for public funds in construction projects, through value management (Omole, 2000; Ajator, 2004), this is yet to be achieved. Also, Oke and Ogunsemi (2011) discovered that value management has not been fully embraced in the Nigerian construction industry as only very few number of value management workshops have been organised so far according to investigation and the workshops were even concluded prematurely. This may be

because it's new to the Nigerian construction Industry. However, the concept of value management is becoming more pronounced in the industry especially among construction professionals according to Olanrewaju and Khairuddin (2007) where 36%, 30%, 11%, and 19% of the research population familiar with value management are quantity surveyors, engineers, architects and estate managers respectively.

### **2.7.2 Value management and Quantity Surveying practice in Nigeria**

Value management is a process that enables all parties potentially affected by a project to be involved in a collaborative process which encourages greater understanding of the project and ongoing cooperation in the delivery of outcomes. Value management is a multi-discipline exercise and therefore requires the participation of consultants from all relevant design disciplines, client representatives and contractors who share a common interest in the success of the project. To be effective, and as it is regarded as critical to the success of value management, the team should have an appropriate mix of experience, knowledge and skills and dependent upon workshop objectives, a range of stakeholder perspectives. The ability of the facilitator is central to the success of the value management process. His role may include advising upon the selection of the value management team, coordinating value management pre-workshop activities, deciding upon the timing and duration of workshops, managing the workshop process and preparing reports. The management of the workshop can be a difficult task, requiring a variety of skills. A research conducted by Ellis, *et al.* (2005) demonstrated that quantity surveyors from leading UK quantity surveying firms were found to demonstrate ability and skills necessary to act as facilitators. It is suggested that the Nigerian quantity surveyors should embark on formal training in value management to prepare themselves not only in participating in value management studies but also in leading other

construction professionals in performing the very important role of workshop facilitators (Odeyinka, 2006).

The Quantity Surveying Profession has developed a long way since it was first conceived over two centuries ago. Then, it was a post-measurement and accounting discipline only. Over the years the role of the Quantity Surveyor increased in its importance due to the rapid development and urbanization of cities and town and with increased emphasis placed upon costs of building. In order to accurately forecast and control costs, the Profession began to develop various methods. Initially, only initial costs in use were taken into account. The importance and work of the Quantity Surveyor expanded during the 1980s due to the interest in whole life cycle costing.

The availability of limited resources associated with continued importance of the economic choices has assured the Quantity Surveyor a prominent future in the construction industry. However, Quantity Surveyors needed to expand their skills, expertise and client based in order to survive. Various challenges faced the profession by the end of the twentieth century. The Profession also has been able to develop and utilize their skills more fully due to the increased activities associated with information technology which removed some of the repetitive tasks associated with their work. In addition to solely considering initial costs of construction, emphasis has shifted to identifying and adding value to the development process. All over the world, Quantity Surveyors are now involved in a variety of projects ranging from homes, airports, power stations, highways, sports stadium to offshore oil rigs. They are involved at all levels of the process, starting with advising on the initial proposal for a project to meeting the client's needs, right through its working life and even how to recycle the building. They provide complex solution based services on a scale that few have imagined. Although quantity surveyors still provide traditional services, they now service new industries and

offer a wider spread of services to a wider spread of clients. This is opening new commercial possibilities for quantity surveyors whether working for companies, client groups, contractors or other advisory and consulting firms (Jagun, 2006).

### **2.7.3 Benefits of Value management**

The benefits of applying value management as evident in other construction industries across the world include increase in overall client values in the project, removal of unnecessary costs, increased creativity, increased savings, improved performance of the construction industry and increase in the functionality of the finished product (Jaapar et al, 2009).The value management process has also led to better decision making, communication, trust and finally greater levels of satisfaction from the stakeholders involved in the construction industry process. Finally value management creates or increases the awareness and adoption of a value culture in organizations involved in the construction industry. This value culture will be valuable in ensuring that practices of the construction industry are carried with the view of satisfying the needs and expectations of the clients and other stakeholders involved in the process. This shall go a long way in increasing the efficiency and effectiveness of the construction industry in general. The Institute of Value Management (2008) observed that the most visible benefits arising out of the application of value management include:

1. Better business decisions by providing decision makers a sound basis for their choice
2. Improved products and services to external customers by clearly understanding and giving due priority to their real needs
3. Enhanced competitiveness by facilitating technical and organizational innovation.
4. A common value culture, thus enhancing every member's understanding of the organisation's goals

5. Improved internal communication and common knowledge of the main success factors for the organization
6. Simultaneously enhanced communication and efficiency by developing multidisciplinary and multitask team work
7. Decisions which can be supported by the stakeholders.

According to Oke and Ogunsemi (2011), the following are the perceived benefits of value management if fully incorporated into construction projects in Nigeria:

- Encourage use of local materials in construction
- Adoption of new construction techniques/innovation
- Cost effectiveness
- Effective delivery system/meeting completion period
- Aids conflict management
- Improves quality of work
- It promotes adaptability and flexibility
- It gives the true worth or value of money to client
- It enhances competitive edge for the contractor
- It enhances quality performance of construction projects
- Eliminates unnecessary design
- Improves functional space quality of projects
- Enhance economic investment
- Reduce cost and improve value
- Help in decision making
- It will enhance construction professionals to work as a team
- It will give room for motivation and high technical advancement

- It will enhance good quality of work
- It will enhance mutual relationship and confidence
- It will ensure standard delivery i.e. value for money
- Increase performance of the construction industry
- Unnecessary spending will be avoided
- Technological advancement
- Effective project delivery services
- Much valuable projects
- It will reduce project abandonment

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter discusses the methodology used in the study. The research population, sample and sampling techniques as well as the instrument of data gathering are all contained in this chapter.

#### **3.2 Research Approach**

The approach adopted for this research is the quantitative method of research. Wimmer and Dominick (2000) opine that survey research has to do with questioning individuals about their attitudes, emotions, beliefs, intentions and behaviours. Hence the survey method of research was employed to reveal the opinion of practicing quantity surveyors regarding the readiness of the industry to adopt value management.

#### **3.3 Population**

The population is the entire group whose characteristics are to be estimated (Wimmer et al, 2011). A population can be defined as the universe represented in a group of interest which the researcher wishes to draw information and generalize result of a study. Also, Verma and Beard (1981) describe population as a large group from which a sample is selected for study. For the purpose of this study, a list of registered quantity surveying firms obtained from the Quantity Surveyors' Registration Board of Nigeria (QSRBN) in September 2014 shows that there are 168 registered consultancy firms across the country.

#### **3.4 Sample size**

According to Asika (1991), "the sample is precisely the part of the population." It is the small part of the population intended as a representative of the whole. For this study, selective random sampling method was used in the process of administering the

questionnaire. Using a sample frame N=168, which is the total number of registered firms obtained from QSRBN, and applying Krejcie and Morgan's (1970) formula to determine the sample size, a sample size of 117 was used for the study as shown below:

$$S = \frac{x^2 NP(1 - P)}{d^2(N - 1) + x^2 P(1 - P)}$$

Where;

S = Required Sample

X<sup>2</sup> = Table of value of Chi-Squared for 1 degree of freedom at the desired confidence level (taken as 3.841)

N = The population size

P = The population proportion (assumed to be 0.5)

d = Degree of accuracy expressed as a proportion (taken as 0.05)

therefore;

$$S = \frac{(3.841 \times 168 \times 0.5 (1-0.5))}{0.05^2 (168-1) + 3841 \times 0.5(1-0.5)}$$

$$= \mathbf{117.09}$$

Therefore, concentrating on Abuja, Kaduna and Kano where a substantial number of these firms are handling their projects, a total number of 117 questionnaires were administered to quantity surveying firms for the purpose of this study.

### **3.5 Data Collection**

Relevant literature including textbooks, journals, articles and conference paper were reviewed so as to discuss the history, development and application of value management. This was to provide an insight on the subject matter as well as the practice in the Nigerian construction industry. The literature review provided a good basis for preparing the questionnaire.

The questionnaire was used to acquire data. While some of the questions were intended to reveal the constraints to the application of value management, others were to find out if the requirements for value management really exist. All these were analyzed to determine the adoptability of value management in Nigerian construction industry.

### **3.5.1 Questionnaire**

The questionnaire is a device for getting answers to questions by using a form which the respondents, fills by him/herself. Questionnaire like interview tries to get the feelings, opinions, beliefs, experiences or activities of respondents. It is cost effective, it requires much less skill to administer, the impersonal nature of questionnaire answer some uniformity from one measurement situation to another, the respondents may have greater confidence in their anonymity and thus feel freer to express their views; questionnaire places less pressure on the respondent for immediate response.

The questionnaire in the study was structured into five sections. Section A consisted of the personal information of respondents, Section B consisted of questions aimed at determining the existence of facilitators for introducing value management while Section C was also made up of questions aimed at discovering the respondents level of knowledge of value management for reliability concerns. Section D was made up of questions targeted at finding out the existence or otherwise, of the barriers to adopting value management. Finally, section E was structured with questions to determine the level of existence of the requirements for the adoption of value management.

### **3.6 Data Presentation and Analysis**

This study adopted percentages and mean ratings in analysing the data collected through the research instrument. Some of the results were presented using simple statistical instruments like tables. The Statistical Package for Social Sciences (SPSS) software was used to analyse the data obtained for each section as explained below:

- a) To analyse the items in section A of the questionnaire, frequencies and percentages were used to determine the proportions of the variables with pie chart illustrations.
- b) For section B, C, D and E, frequencies, mean and standard deviation were computed for the purpose of analysis.
- c) The mean ratings of the factors were used to rank their level of existence as either low, moderate or high based on the following boundaries as developed by Ruikar *et al.* (2006):
- i) a mean rating with value  $0.00 \leq x \leq 2.50$  is considered 'Low';
  - ii) a mean rating with value  $2.50 \leq x \leq 3.50$  is considered 'Moderate'; and
  - iii) a mean rating with value  $3.50 \leq x \leq 5.00$  is considered 'High'.

## **CHAPTER FOUR**

### **DATA PRESENTATION, ANALYSIS AND DISCUSSION**

#### **4.1 Introduction**

The data collected to assess the readiness of the Nigerian Construction Industry to adopt value management were analysed and presented in this chapter. In view of the objectives of this study, a total of 117 questionnaires semi-structured questionnaires were administered to quantity surveying firms.

The collected questionnaires were carefully coded and the data entered into the statistical package for social science (SPSS V.20). Having done this, seventy (70) questionnaires were retrieved from the total number of 117 questionnaires administered, which presents the study with a sixty percent (60%) return rate.

Based on the assertion of Moser and Kalton (1971), the result of a survey could be considered significant if the response rate is not lower than 30-40%. Based on this, the percentage of the returned questionnaires is adequate for the analysis.

## 4.2 Data Presentation and Analysis

**Table 4.1** Respondents Years of Experience in the Industry

	Frequency	Percent	Cumulative Percent
less than 5 years	5	7.1	7.1
6-10 years	24	34.3	41.4
11-15 years	21	30.0	71.4
16-20 years	9	12.9	84.3
21-25 years	6	8.6	92.9
more than 25 years	5	7.1	100.0
<b>Total</b>	<b>70</b>	<b>100.0</b>	

From Table 4.1, most of the respondents 92.9% out of the total population of the study indicated that they have been involved (actively) in the construction sector in Nigeria long enough to provide the study with informed information as they fall under the range of 6-30 yrs.

**Table 4.2** Management Level of respondents

	Frequency	Percent	Cumulative Percent
Top management level	19	27.1	27.1
Middle management level	41	58.6	85.7
Low management level	10	14.3	100.0
<b>Total</b>	<b>70</b>	<b>100.0</b>	

In order to ensure that the respondents are able to provide the study with a well-informed response, respondents position or rank was also inquired. From table 4.2, 60 (85.7%) respondents were found to be at the top and middle management level in their various organizations while the rest 10 (14.3%) of the respondents appeared to be at the low management level. From the distribution here, it could be deduced that based on management level, the respondents have the tendency to provide the research with well-informed answers.

**Table 4.3 Level of familiarity with the term ‘Value Management’**

	Frequency	Percent	Cumulative Percent
knowledgeable	16	22.9	22.9
fairly knowledgeable	38	54.3	77.1
less knowledgeable	11	15.7	92.9
not knowledgeable	5	7.1	100.0
<b>Total</b>	<b>70</b>	<b>100.0</b>	

Table 4.3 shows that majority of the respondents are familiar with the term ‘value management’. Though, as can be seen from the table, majority of the respondents revealed that they are fairly knowledgeable with 38 (54.3%) attesting to this. In addition to this, 16 and 11 other respondents representing 22.9% and 15.7% of the population revealed that they are knowledgeable and less knowledgeable of the term respectively, while only 5 (7.1%) stated that they are not knowledgeable. This shows majority of the respondents are fairly knowledgeable which also indicates the respondents’ ability to give informed responses.

**Table 4.4 Respondents perception of value management**

	Frequency	Percent	Cumulative Percent
a concept	12	17.1	17.1
a technique	25	35.7	52.9
a profession	4	5.7	58.6
all of the above	29	41.4	100.0
<b>Total</b>	<b>70</b>	<b>100.0</b>	

From table 4.4 above, respondents view value management from different perspectives. As could be seen, 12 (17.1%) view it as a concept, 25 (35.7%) view it as a technique and 4 (5.7%) view it as a profession. From the table also, 29 other respondents representing 41.4% view value management as a combination of concept, technique, discipline and profession. This also indicates the respondents' ability to provide informed responses as 41.4% of the responses tallies with what is obtainable in Literature.

**Table 4.5 Respondents involvement value management Workshops**

	Frequency	Percent	Cumulative Percent
yes	2	2.9	2.9
no	68	97.1	100.0
<b>Total</b>	<b>70</b>	<b>100.0</b>	

Table 4.5 shows that majority of the respondents have not participated in value management workshop. This could be as a result of the non-application or slow take-off of value management in the Nigerian construction industry. This indicates the need for

professional bodies like NIQS to intensify efforts on awareness as to the benefits of value management.

**Table 4.6 Respondents Perception of the existence of Drivers/Facilitators of Value Management in the Nigerian construction industry.**

Variables	Mean	Std deviation	Level of existence
Client's interest in the use of the technique	2.25	.98813	Low
Availability of well trained individuals to act as facilitators in the workshop	2.63	.72575	Moderate
Government support through legislation	3.67	.47309	High
Excellent and collaborative working relationship	3.12	.79712	Moderate
Commitment and cooperation of professional bodies to the implementation of the technique	2.30	.70915	Low
Public awareness by the stakeholders on the benefits of value management	1.11	.75264	Low
Conducive project environment	2.60	1.02717	Low

**Source: field survey, 2014**

From Table 4.6, the opinion of respondents was sought as regards to the existence of factors that could help facilitate the introduction of value management in the Nigerian construction industry. This was to find out their understanding of value management by giving their perception as to the level of existence of the facilitators. The table revealed that most of the drivers presented to the respondents as the facilitators for value management have a low level of existence which indicates the need for serious adjustments to improve on these factors. Excellent and collaborative working relationship and availability of well trained individuals to act as facilitators in the workshop have a moderate level of existence indicating the need for little effort for improvement, while Government support through legislation has a high level of existence indicating that the necessary legislation is in place. However, there is the need for enforcing the legislation.

From table 4.6 showing factors which will help to facilitate and encourage the application of value management indicate that 50 (71.4%) respondents affirmed that client's interest in the use of value management never or rarely exist. This is not unconnected to the fact that most clients are not aware of the benefits of value management. The table also revealed that availability of well trained personnel to act as facilitators in workshops are most times non-existent. This is affirmed by majority of the respondents 39 (55.7%) who stated that facilitators sometimes exist, while 5 (7.1%) and 21 (30.0%) were of the view that facilitators never exist and rarely exist respectively.

From the table also, majority of the respondents indicated that commitment and cooperation of professional bodies to the implementation of value management never or rarely exists as attested to by 55.7% of the population sampled. However, 44.3% of the population stated that cooperation among professional bodies sometimes exists. This could be connected to calls for ensuring clients value for money by professional bodies (especially NIQS) in conferences and seminars.

On the creation of awareness on the benefits of value management by stakeholders, majority of the respondents 58 (82.9%) revealed that public awareness by the stakeholders never exist. Irrespective of the overwhelming assertion by respondents, 6 (8.6%) stated that sometimes stakeholders carryout public awareness campaign on the benefits of value management. This necessitates for more public awareness by the stakeholders.

As presented above, the mean values of almost the entire items in the table indicates either a low or moderate level of existence. Thus, we could deduce that aside government legislation, with a mean score of 3.67 most of the drivers/facilitators for introducing value management in Nigeria are on the low level of existence according to our respondents in this study.

**Table 4.7 Unique features of value management**

	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
it is function based	3.00	2.00	5.00	4.18	.68721	.472
it involves structured multi-disciplinary team-based workshops	4.00	.00	4.00	3.88	.67121	.451
it employs a range of analytical tools	1.00	3.00	4.00	3.77	.42294	.179
it involves creative brainstorming	2.00	3.00	5.00	4.21	.75934	.577
it follows a structured 'job plan'	3.00	2.00	5.00	3.74	.95835	.918
it is led by a qualified value practitioner	3.00	2.00	5.00	4.11	.97122	.943
its fees is net-savings based	4.00	.00	4.00	2.88	1.05697	1.117
its fees is contract sum based	4.00	.00	4.00	2.42	1.39950	1.959
it involves customers/end users	2.00	3.00	5.00	4.07	.64429	.415
it causes study terms to achieve sustained improvements	2.00	3.00	5.00	4.05	.65686	.431
it uses cost-effectiveness technique	3.00	2.00	5.00	3.51	.95921	.920
its main aim is to reduce cost	3.00	.00	3.00	2.04	.90787	.824

**Source: field survey, 2014**

**Table 4.8 Respondents understanding of the features of value management**

	<b>Mean</b>	<b>Level of agreement</b>
It is function based	4.19	High
It involves structured multi-disciplinary team-based workshop	3.89	High
It employs a range of analytical tools	3.77	High
It involves creative brainstorming	4.21	High
It follows a structured job plan	3.74	High
It is led by a qualified value practitioner	4.11	High
Its main aim is to reduce cost	2.04	Low

**Source: field survey, 2014**

The extent of respondents' identification and agreement of the unique features of value management was here measured as presented in tables 4.7 & 4.8. The main aim of this section is to find out if the respondents really understand the concept of value management in order to determine the reliability of their responses. From table 4.7, 41 (58.6%) respondents agree that value management is function based and also 22 (31.4%) respondents strongly agreed in that regard. However, 2 (2.9%) of the respondents disagreed that it is function based while 5 (7.1%) respondents somewhat agree. From the

table also, 68 (97.1%) respondent agreed that value management involves structured multi-disciplinary team-based workshops while 2 (2.9%) other respondents somewhat agreed with the assertion. Also in table 4.7, 27 (38.6%) respondents agree that another unique feature of value management that can facilitate its adoption in the Nigerian construction industry is that it involves creative brainstorming. This is strengthened by another 29 (41.4%) of respondents who strongly agreed that creative brainstorming is a unique feature of value management that could facilitate its adoption.

The next feature of value management put forward to the respondents is that value management follows a structured job plan where 32 (45.7%) respondents agreed, 15 (21.4%) said they strongly agree and 13 (18.6%) somewhat agreed. However, 10 (14.3%) respondents disagreed with this assertion. This is a very small number compared to those that agree which signifies that most of the respondents are fairly knowledgeable of the concept.

Respondents were also asked to agree or disagree that value management is led by a qualified value practitioner. From the table, 25 (35.7%) agreed and 30(42.9%) strongly agreed. This view was however not supported by 7(10.0%) respondents and another 8 (11.4%) respondents who disagreed and somewhat agreed to this respectively. It could be deduced that most of the respondents agree with this as a feature of value management.

From the table also, 40 (57.1%) respondents disagreed that that the main aim of value management is to help reduce cost of a project, while 21 (30.0%) respondents said they somewhat agree. Also, 9 (12.9%) of the respondents were undecided as they failed to select any of the options. Thus, with this analysis, it could be clearly seen that the respondents disagree that the main aim of value management is reduction of project cost.

This tallies with what is obtainable in literature where it has been established that value management is more concerned with improving functions rather than just reducing cost.

As presented above, the mean values of almost all the entire items in the table are above 3.5 indicating a high level of agreement except for one, which says the main aim of value management is to reduce cost with a mean value of 2.04 indicating a low level of agreement. Thus, it could be deduced that the respondents are reliable since their responses regarding the features of value management gives a true representation of what is obtainable in literature.

**Table 4.9 Barriers to adoption and implementation of value management in the Nigerian construction industry**

	Frequency	Percent	Cumulative Percent
<b>wrong beliefs that value management impedes or delays projects</b>			
.00	5	7.1	7.1
rarely exist	10	14.3	21.4
sometimes exist	19	27.1	48.6
most of the times exist	24	34.3	82.9
always exist	12	17.1	100.0
<b>fear of incurring additional cost due to value management study</b>			
never exist	13	18.6	18.6
rarely exist	16	22.9	41.4
sometimes exist	33	47.1	88.6
most of the times exist	8	11.4	100.0
<b>inadequate training and management support</b>			
sometimes exist	18	25.7	25.7
most of the times exist	46	65.7	91.4
always exist	6	8.6	100.0
<b>lack of commitment to implement value management</b>			
never exist	11	15.7	15.7
most of the times exist	30	42.9	58.6
always exist	29	41.4	100.0
<b>lack of encouragement on the part of the government</b>			
rarely exist	13	18.6	18.6
sometimes exist	15	21.4	40.0
always exist	42	60.0	100.0
<b>wrong notion that value management reduces a project's scope</b>			
rarely exist	40	57.1	57.1
sometimes exist	30	42.9	100.0

	Frequency	Percent	Cumulative Percent
<b>difficulties in establishing mutual objectives by all participating organization</b>			
rarely exist	27	38.6	38.6
sometimes exist	28	40.0	78.6
most of the times exist	15	21.4	100.0
<b>difficulties in the involvement of all key stakeholders in project processes</b>			
rarely exist	10	14.3	14.3
sometimes exist	13	18.6	32.9
most of the times exist	47	67.1	100.0
<b>stakeholders resistance to its introduction and implementation</b>			
rarely exist	16	22.9	22.9
sometimes exist	29	41.4	64.3
most of the times exist	14	20.0	84.3
always exist	11	15.7	100.0
<b>lack of collaboration and poor working relationship with team partners</b>			
rarely exist	14	20.0	20.0
sometimes exist	27	38.6	58.6
most of the times exist	29	41.4	100.0

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**Source: field survey, 2014**

From the responses as shown in Table 4.9 above, wrong beliefs that value management impedes or delays projects was seen as an impediment or barrier to applying value management by respondents as attested to by 55 (78.5%) of the respondents who were of the opinion that this wrong belief exists. Sequel to the assertion above is respondents' affirmation that there is this wrong notion that value management could lead to additional cost in project execution as attested to by 54 (77.2%) of the respondents opined that there is a lack of awareness or knowledge of value

management and this stands as a barrier to its application/implementation as against 16 (22.8%) respondents who feel that lack of awareness or knowledge of value management rarely exist, it could be inferred that at present, the awareness or knowledge of value management in the industry is not sufficient to aid its adoption. From the findings also, 56 (80.0%) of the respondents affirmed that organizational resistance to change stand as a barrier to the application of value management, while 14 (20%) other respondents did not see it as a barrier as they feel it rarely exists.

Here also in the table, the respondents also pointed out that inadequate training of personnel and lack of support by management, lack of commitment to implement value management and lack of encouragement on the part of government are barriers that impede the implementation of value management in Nigeria as affirmed by 52 (74.3%), 59 (84.3%) and 57 (81.4%) respectively of the respondents surveyed.

The overall result shows that respondents tend to agree with the existence of most barriers to the adoption of value management in their organizations. This is clearly shown by the mean scores, as shown in table 4.10 below where six of the barriers fall within high level of existence (i.e a mean score of 3.5 – 5.0), seven of the barriers fall within moderate level of existence (i.e a mean score of 2.5 – 3.49), and just one falls within the low level of existence having a mean score of 2.42. The mean score indicates that lack of encouragement on the part of the government and the lack of qualified value management practitioners with mean values of 4.01 and 4.0 are ranked first and second respectively, followed by lack of commitment to implement value management with a mean score of 3.94 which ranks third, lack of time due to rushed designs ranks fourth with a mean value of 3.85, while inadequate training and management support ranks fifth with a mean value of 3.82. Difficulties in the engagement of key stakeholders is ranked sixth with a mean

value of 3.52 while wrong notion that value management reduces a projects scope have the least mean score of 2.42.

**Table 4.10 Mean Scores of barriers to adoption and implementation of value management in the Nigerian construction industry**

Barriers	Range	Mean	Std deviation	Variance	Level of existence
lack of encouragement on the part of the government	3.00	4.01	1.25678	1.580	High
lack of value management qualified practitioners	2.00	4.00	.91683	.841	High
lack of commitment to implement value management	4.00	3.94	1.36079	1.852	High
lack of time due to rushed designs	2.00	3.86	.66563	.443	High
inadequate training and management support	2.00	3.83	.56393	.318	High
difficulties in the involvement of all key stakeholders in project processes	2.00	3.53	.73665	.543	High
organizational resistance to change	3.00	3.33	.97388	.948	Moderate
wrong beliefs that value management impedes or delays projects	5.00	3.33	1.31570	1.731	Moderate
lack of awareness or knowledge of value management	2.0	3.31	.8261	.682	Moderate
stakeholders resistance to its introduction and implementation	3.00	3.29	.99481	.990	Moderate
lack of collaboration and poor working relationship with team partners	2.00	3.21	.75934	.577	Moderate
difficulties in establishing mutual objectives by all participating organization	2.00	2.83	.76084	.579	Moderate
fear of incurring additional cost due to value management study	3.00	2.51	.92850	.862	Moderate
wrong notion that value management reduces a project's scope	1.00	2.43	.49844	.248	Low

**Source: field survey, 2014**

For value management to be adopted and implemented in the Nigerian construction industry, some essential requirements need to be in place. These requirements have been subdivided into four sections, namely; environment, people, process and issues/information. The outlined items seek to uncover if the requirements presented to the respondents do exist based on their opinions. Table 4.11 below shows the frequencies and percentages of the perceived existence of these requirements based on the responses. Following this table is table 4.12 which shows the mean scores and level of existence.

**Table 4.11: Respondents perception on the existence of the essential requirements for value management**

1) Environment Requirements	Frequency	Percent	Cumulative Percent
<b>The procurement acts practiced in Nigeria, states we are located or executing projects in, supports VM</b>			
rarely exist	27	38.6	38.6
sometimes exist	16	22.9	61.4
most of the times exist	27	38.6	100.0
<b>our organization members embrace changes which the organization undergo and the opportunities it brings easily</b>			
never exist	5	7.1	7.1
rarely exist	31	44.3	51.4
sometimes exist	34	48.6	100.0
<b>our organization do recognize and value the cultures of all other stakeholders participating in a project</b>			
rarely exist	28	40.0	40.0
sometimes exist	28	40.0	80.0
most of the times exist	14	20.0	100.0
<b>we encourage collaborative working arrangement between our organization and others</b>			
sometimes exist	42	60.0	60.0
most of the times exist	14	20.0	80.0
always exist	14	20.0	100.0
<b>our current organizational structure provides an environment that suit the adoption of value management in the management of projects</b>			
rarely exist	12	17.1	17.1
sometimes exist	25	35.7	52.9
most of the times exist	33	47.1	100.0
<b>recognition and involvement of end-user's contribution to the arrangement or project process</b>			
rarely exist	13	18.6	18.6
sometimes exist	44	62.9	81.4
most of the times exist	13	18.6	100.0

<b>2)People Requirements</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>our client is well focused and capable of adopting value management</b>			
never exist	14	20.0	20.0
rarely exist	26	37.1	57.1
sometimes exist	14	20.0	77.1
always exist	16	22.9	100.0
<b>our organization is aware of the success recorded by using value management in construction projects elsewhere and its contribution in achieving value for money</b>			
rarely exist	10	14.3	14.3
sometimes exist	42	60.0	74.3
most of the times exist	18	25.7	100.0
<b>we have within our organization people who can conduct value management workshop by acting as "facilitators"</b>			
rarely exist	25	35.7	35.7
sometimes exist	45	64.3	100.0
<b>there is clear definition of roles and responsibilities of each staff working within the organization</b>			
never exist	12	17.1	17.1
rarely exist	28	40.0	57.1
most of the times exist	30	42.9	100.0
<b>we do have staff with the ability to implement newly introduced concept quickly and accurately</b>			
rarely exist	8	11.4	11.4
sometimes exist	13	18.6	30.0
most of the times exist	28	40.0	70.0
always exist	21	30.0	100.0
<b>we have confidence in the expertise and competence of other project stakeholders</b>			
rarely exist	13	18.6	18.6
sometimes exist	16	22.9	41.4
most of the times exist	29	41.4	82.9
always exist	12	17.1	100.0

<b>3) Process Requirements</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>our procurement and contract strategy is appropriate for value management implementation</b>			
sometimes exist	40	57.1	57.1
most of the times exist	15	21.4	78.6
always exist	15	21.4	100.0
<b>we acknowledge and appreciate the benefits of embracing new concepts for improving service delivery</b>			
sometimes exist	13	18.6	18.6
most of the times exist	41	58.6	77.1
always exist	16	22.9	100.0
<b>we do participate in an open and effective communication between the project stakeholders</b>			
sometimes exist	14	20.0	20.0
most of the times exist	40	57.1	77.1
always exist	16	22.9	100.0
<b>we do attend formal and informal meetings between project stakeholders</b>			
sometimes exist	18	25.7	25.7
most of the times exist	52	74.3	100.0
<b>we have change management strategy that will ensure smooth introduction of new techniques</b>			
sometimes exist	59	84.3	84.3
most of the times exist	11	15.7	100.0

<b>4)Issues/Information Requirements</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>our client excellently communicates his requirements, needs and wishes to the design team</b>			
sometimes exist	18	25.7	25.7
most of the times exist	35	50.0	75.7
always exist	17	24.3	100.0
<b>value for money is clearly spelt out and understood in carrying out individual projects</b>			
sometimes exist	41	58.6	58.6
most of the times exist	29	41.4	100.0
<b>construction programmes are well designed and scheduled</b>			
never exist	10	14.3	14.3
rarely exist	15	21.4	35.7
most of the times exist	40	57.1	92.9
no response	5	7.1	100.0
<b>the cost of a project is clearly known in good time</b>			
rarely exist	5	7.1	7.1
sometimes exist	26	37.1	44.3
most of the times exist	39	55.7	100.0
<b>contract durations are definite and well defined</b>			
sometimes exist	28	40.0	40.0
most of the times exist	42	60.0	100.0

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**Source: field survey, 2014**

**Table 4.12: Mean scores and level of existence of the requirements for value management**

	Range statistics	Mean	Std statistics	Variance	Rank	Level of existence
<b>ENVIRONMENT</b>						
we encourage collaborative working arrangement between our organization and others	2.00	3.60	.80578	.649	1	High
our current organizational structure provides an environment that suit the adoption of value management in the management of projects	2.00	3.30	.74891	.561	2	Moderate
the procurement acts practiced in Nigeria where we are located or executing projects in, supports value management	2.00	3.00	.88465	.783	3	Moderate
recognition and involvement of end-user's contribution to the arrangement or project process	2.00	3.00	.61385	.377	3	Moderate
our organization do recognize and value the cultures of all other stakeholders participating in a project	2.00	2.80	.75373	.568	4	Moderate
our organization members embrace changes which the organization undergo and the opportunities it brings easily	2.00	2.41	.62538	.391	5	Low
<b>PEOPLE</b>						
we do have staff with the ability to implement newly introduced concept quickly and accurately	3.00	3.89	.97122	.943	1	High
we have confidence in the expertise and competence of other project stakeholders	3.00	3.57	.98645	.973	2	High
our organization is aware of the success recorded by using value management in construction projects elsewhere and its contribution in achieving value for money	2.00	3.11	.62654	.393	3	Moderate
our client is well focused and capable of adopting value management	4.00	2.69	1.41977	2.016	4	Moderate
there is clear definition of roles and responsibilities of each staff working within the organization	3.00	2.69	1.19834	1.436	4	Moderate
we have within our organization people who can conduct value management workshop by acting as "facilitators"	1.00	2.64	.48262	.233	5	Moderate

<b>PROCESS</b>						
we acknowledge and appreciate the benefits of embracing new concepts for improving service delivery	2.00	4.04	.64686	.418	1	High
we do participate in an open and effective communication between the project stakeholders	2.00	4.03	.65875	.434	2	High
we do attend formal and informal meetings between project stakeholders	1.00	3.74	.44021	.194	3	High
our procurement and contract strategy is appropriate for value management implementation	2.00	3.64	.81713	.668	4	High
we have change management strategy that will ensure smooth introduction of new techniques	1.00	3.16	.36656	.134	5	Moderate
<b>ISSUES/INFORMATION</b>						
our client excellently communicates his requirements, needs and wishes to the design team	2.00	3.99	.71207	.507	1	High
contract durations are definite and well defined	1.00	3.60	.49344	.243	2	High
the cost of a project is clearly known in good time	2.00	3.49	.63114	.398	3	Moderate
value for money is clearly spelt out and understood in carrying out individual projects	1.00	3.41	.49615	.246	4	Moderate
construction programmes are well designed and scheduled	5.00	3.29	1.39505	1.946	5	Moderate

**Source: field survey, 2014**

For the environment requirement, the analysis from table 4.11 shows that the respondents are of the view that the procurement Act practiced in Nigeria where their firms operate, supports value management with 43 (61.5%) of the respondents selecting sometimes and most of the times as their views. Here also in the table, respondents pointed out that there is collaborative working arrangement within and between organizations which enhances working relationship.

The result from the analysis in table 4.12 indicates that under the environment requirements, collaborative working arrangement has the highest mean score of 3.60 and

is ranked first, followed by organizational structure that suits the adoption of value management with 3.30. The lowest mean score of 2.41 was recorded by embracing changes that organizations undergo which indicates the existence of resistance to changes. This shows that under the environment requirements, value management can be adopted with little adjustments.

For the people requirements, the analysis presented in table 4.11, shows that most clients are not focused and capable of adopting value management as affirmed by 57.1% of the respondents. This is not unconnected to the fact that most clients are not aware of the concept. Also, on having people within their organizations who can act as facilitators in value management workshop, 25 (35.7%) of the respondents stated that they rarely exist while another 45 (64.3%) stated that they sometimes exist. Though respondents pointed out that there is clear definition of roles and responsibilities of each staff in their organization as indicated by 30(42.9%) respondents, 12 (17.1%) and 28 (40%) stated otherwise. The result from the analysis in table 4.12 indicates that under the people requirements, existence of staff with the ability to implement newly introduced concept quickly and accurately is ranked first with a mean score of 3.88, followed by the existence of confidence in the expertise and competence of stakeholders with a mean score of 3.57. The lowest mean score was recorded by having people within organization to serve as facilitators in value management workshop with a mean value of 2.64. From the mean scores recorded, it could be deduced that the people requirement indicates that value management can be accommodated with little effort as all of the requirements have either a moderate or high level of existence.

For the process requirements, the survey in table 4.11 show that the appropriateness of procurement and contract strategy for value management implementation sometimes exist where 57% of the respondents opined so. Also, 78.5% of

the respondents believe that acknowledgement and appreciation of the benefits of embracing new concepts for improving service delivery exist in their organizations. Furthermore 60 (85.7%) of the respondents opined that change management strategy that ensures smooth introduction of new techniques sometimes exist in their organizations which indicates poor change management strategy in most of the organizations. The result from the analysis in table 4.12 indicates that under the process requirements, acknowledgement and appreciation of the benefits of embracing new concepts for improving service delivery is ranked first with a mean score of 4.04, followed by open and effective communication between project stakeholders with a mean score of 4.02. The lowest mean score was recorded by change management strategy that ensures smooth introduction of new techniques with a mean value of 3.15. This means that process requirement within the Nigerian construction industry needs adjustments to accommodate value management especially in the area of change management.

For the Issues/Information requirements, the result in table 4.11 shows that 41 (58.5%) of the respondents believe that clear understanding of value for money in carrying out projects sometimes exist. This is not a good indication as value management requires a clear definition of value systems in carrying out projects. Also, 82.8% stated that, sometimes or most of the times, cost of projects are known in good time. This signifies the need for adjustment/improvement from the current practice as value management requires clear and complete project cost in good time.

### **4.3 Discussion of findings**

#### **4.3.1 Facilitators and Barriers to adopting value management**

The results in table 4.6 above show that government support through legislation is the only factor under facilitators with a high level of existence which means that government support is adequate enough to facilitate value management implementation.

Excellent and collaborative working relationship, conducive project environment and availability of well trained individuals to act as facilitators have a moderate level of existence which means more efforts should be geared towards improving collaborative working relationship and the provision of training for individuals to act as facilitators in a value management workshop. Clients interest in the use of value management, public awareness on the benefits of value management and commitment and cooperation of professional bodies have a low level of existence which requires urgent attention for improvement. On the other hand, 13 out of the 14 identified barriers have either a moderate or high level of existence (mean scores ranging between 2.5-3.49 or 3.5-5.0) while just one identified barrier falls within the range of low level of existence (i.e. 0-2.49). Therefore, great effort must be directed towards eliminating these barriers. This reveals that in the opinion of the respondents considered for the purpose of this study, most of the barriers to value management do exist while most of the facilitators are non-existent.

### **4.3.2 Essential requirements for introducing value management**

#### **4.3.2.1 Environment**

The results show that encouraging collaborative working arrangement with other organizations has a high level of existence with a mean score of 3.60. Four other factors have a moderate level of existence which means just little effort is required for improvement. However, embracing changes within organizations has a low level of existence with a mean score of 2.41 indicating the need for serious adjustments on this aspect. However, the overall mean for the environment aspect is 3.01 which fall within the moderate level of existence. Therefore, this indicates that based on the environment requirement, the Nigerian construction industry is ready to adopt value management with little adjustments using less effort.

#### **4.3.2.2 People**

Six factors were presented under this aspect. The results in table 4.12 show that four of the factors fall within moderate level of existence with mean scores within the range of 2.5-3.49, while the remaining two have a high level of existence with mean scores within the range of 3.5-5.0. This means that the requirements under people aspect have either a moderate or high level of existence. Also, the overall mean for the people aspect is 3.09 which also fall within moderate level of existence and therefore indicates that based on the people aspect of the requirements, the Nigerian construction industry can adopt value management with little effort.

#### **4.3.2.3 Process**

Under this aspect, five factors were listed and the result in table 4.12 shows that four of the factors have a high level of existence with a mean value within the range of 3.50-5.0 while one factor has a mean score of 3.15 indicating a moderate level of existence. The overall mean score for the process aspect of the requirements is 3.72 which indicate a high level of existence. This implies that based on the process aspect of the requirements, the Nigerian construction industry can conveniently adopt value management processes with less difficulties.

#### **4.3.2.4 Issues/Information**

Five factors were listed under this aspect. The result in table 4.12 revealed that two of the factors have a high level of existence with mean scores within the range of 3.50-5.0 while the remaining three have a moderate level of existence with mean scores within the range of 2.5-3.49. The overall mean score here is 3.55 which fall within the range for high level of existence. This implies that based on issues/information aspect of the requirements for value management, the Nigerian construction industry is ready to

adopt value management as a strategy for effective project delivery that can enhance value for money.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Summary of findings**

Below are the major findings from the study:

- i. Professionals in the Nigerian construction industry have a good understanding of value management as indicated in table 4.7 and 4.8 with mean values falling within high level.
- ii. The barriers to adopting value management in the Nigerian construction industry are more prevalent than the facilitators of adopting value management as the result revealed that government support through legislation is the only factor under facilitators with a high level of existence while key barriers existent are lack of value management qualified practitioners, lack of commitment to implement value management, lack of time due to rushed designs and difficulties in the involvement of all key stakeholders in project processes.
- iii. The Nigerian construction industry can adopt value management processes with little effort for adjustments based on all the four categories of the requirements for value management with an overall mean of 3.34 which falls within the moderate level of existence.

#### **5.2 Conclusions**

The first objective of the research is centred on identifying the requirements for value management. From the literature reviewed on value management and the construction industry, it was clear that value management is geared towards improving value for money amongst other things. Its major aim is achieving the best value from a construction project for stakeholders. Value management process tries to make what

constitutes value to the client explicit and ensures it is consistent with the client's value system. This helps in ensuring that the right project is embarked upon in the first place. Therefore, identifying the requirements for value management was achieved through literature review where it was discovered that the requirements are categorised under four aspects: environment, people, process, issues and information.

In pursuit of the second, third and fourth objectives, which were aimed at appraising the understanding of professionals on value management, appraising the perceived barriers of value management, and determining the industry's readiness to adopt value management processes respectively, a semi-structured questionnaire was administered, and the responses were analysed using SPSS. The results indicated that the Nigerian construction industry is, to a large extent, capable of adopting value management process with less effort.

### **5.3 Recommendations**

Based on the findings and conclusions, the following recommendations are put forward:

- i) There is the need for adequate awareness on the benefits of value management to all stakeholders within the Nigerian Construction Industry.
- ii) Organisations should review their techniques and processes from time to time for improvement on effective service delivery.
- iii) A change management strategy should be part of every organization to ease the introduction of new techniques such as Value Management.
- iv) There is the need for more value management training workshops and seminars in order to enlighten the participants of the construction industry on the principles, concept and techniques involved in the value management process.
- v) There is the need for the government to adopt value management as part of the procurement process as designed by the Bureau for Public Procurement.

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## APPENDIX

### Questionnaire

DEPARTMENT OF QUANTITY SURVEYING  
FACULTY OF ENVIRONMENTAL DESIGN  
AHMADU BELLO UNIVERSITY, ZARIA

#### M. Sc PROJECT MANAGEMENT QUESTIONNAIRE SURVEY

#### INVESTIGATING THE ADOPTABILITY OF VALUE MANAGEMENT IN THE NIGERIAN CONSTRUCTION INDUSTRY: A CASE STUDY OF QUANTITY SURVEYING CONSULTANCY FIRMS

Dear Respondent,

I am undertaking a research as part of my M. Sc. Programme in the Department of Quantity Surveying, Ahmadu Bello University-Zaria. The title of the study is: *Investigating the adoptability of Value management in the Nigerian Construction Industry: A Case Study of Quantity Surveying Consultancy firms*. The study, if successfully completed, will provide a clear indication on the current status of Quantity Surveyors within the Nigerian Construction Industry and their readiness for adopting value management. It will also highlight their areas of strengths and weaknesses which will help them to plan ahead.

I would be grateful if you spare your time to answer the questions.

The information provided will be treated confidentially and used for data analysis only.

I would be glad to share the summary of my findings with you, if you provide your contact details.

Thank you very much for your time.

Umar Aminu Hayatu  
08038740876  
[umarhayatuqs@yahoo.com](mailto:umarhayatuqs@yahoo.com)

**SECTION A  
GENERAL INFORMATION**

For each of the following questions, you are required to write the requested information in the space provided or indicate, using a tick (✓), the options that best represent your situation/opinion.

1	Personal Information (optional)					
1a	Name:	1b	Telephone No.		1c	Email:
1d	Contact Address				1e	Date:
2	How many years have you been involved in the construction sector?					
	Less than 5 years	6-10 years	11-15 years	16-20 years	21-25 years	More than 25 years
3	What is your rank/position in your organisation?					
	Top management Level		Middle management Level		Low management Level	
4	How familiar are you with the term 'Value management'?					
	Very knowledgeable	Knowledgeable	Fairly knowledgeable	Less knowledgeable	Not Knowledgeable	
5	What do you know Value management as?					
	A concept	A technique	A discipline	A profession	All of the above	
6	Has your organisation ever participated in a project executed using value management?					
	Yes		No			

**SECTION B  
DRIVERS/FACILITATORS FOR INTRODUCING  
VALUE MANAGEMENT**

The following are some drivers/facilitators for introducing and implementing value management. Using a scale 1 to 5, where 1 represents “never exist”, 2 represents “rarely exist”, 3 represents “sometimes exist”, 4 represents “most of the times exist” and 5 represents “always exist”, indicate your assessment of the level of existence of each of the drivers/facilitators within the Nigerian Construction Industry .

S/NO	Drivers/ Facilitators	LEVEL OF EXISTENCE				
		1	2	3	4	5
1	Client’s interest in the use of the technique					
2	Availability of well trained individuals to act as facilitators in the workshop					
3	Government support through legislation					
4	Public awareness by the stakeholders on the benefits of the technique					
5	Excellent and collaborative working relationship					
6	Commitment and cooperation of professional bodies to the implementation of the technique					
7	Appropriate and flexible procurement system					
8	Conducive project environment					
9	Other stakeholders interest/support in the use of the technique					

**SECTION C**  
**UNIQUE FEATURES OF VALUE MANAGEMENT THAT**  
**CAN FACILITATE ITS ADOPTION**

The following are some features that can facilitate the adoption of value management in your organisation. Using a scale 1 to 5, where 1 represents “strongly disagree”, 2 represents “disagree”, 3 represents “somewhat agree”, 4 represents “agree” and 5 represents “strongly agree”, indicate the extent to which you agree with the following as features of value management

S/NO	Features	LEVEL OF AGREEMENT				
		1	2	3	4	5
1	It is function based					
2	It involves structured multi-disciplinary team-based workshops					
3	It employs a range of analytical tools					
4	It involves creative brainstorming					
5	It follows a structured ‘Job Plan’					
6	It is led by a qualified value practitioner					
7	Its fees is net-savings based					
8	Its fees is contract sum based					
9	It involves customers/end users					
10	It causes study terms to achieve sustained improvements					
11	It uses cost-effectiveness techniques					
12	Its main aim is to reduce cost					
13	Its main aim is to improve function at reduced cost					

**SECTION D:  
BARRIERS TO ADOPTING AND IMPLEMENTING VALUE  
MANAGEMENT**

The following are some barriers to adopting and implementing value management. Using a scale 1 to 5, where 1 represents “never exist”, 2 represents “rarely exist”, 3 represents “sometimes exist”, 4 represents “most of the times exist” and 5 represents “always exist”, indicate your assessment of the level of existence of each of the barriers .

S/NO	Barriers	LEVEL OF EXISTENCE				
		1	2	3	4	5
1	Lack of awareness or knowledge of value management					
2	Organizational resistance to change					
3	Lack of value management qualified practitioners					
4	Lack of time due to rushed designs					
5	Wrong beliefs that value management impedes or delays projects					
6	Fear of incurring additional cost due to value management study					
7	Inadequate training and management support					
8	Lack of commitment to implement value management					
9	Lack of encouragement on the part of the government					
10	Wrong notion that value management reduces a project's scope					
11	Difficulties in establishing mutual objectives by all participating organization					
12	Difficulties in the involvement of all key stakeholders in project processes					
13	Stakeholders resistance to its introduction and implementation					
14	Lack of collaboration and poor working relationships with team partners					

**SECTION E:  
ESSENTIAL REQUIREMENTS FOR INTRODUCING AND  
IMPLEMENTING VALUE MANAGEMENT**

The following are some essential requirements for introducing and implementing value management. Using a scale 1 to 5, where 1 represents “never exist”, 2 represents “rarely exist”, 3 represents “sometimes exist”, 4 represents “most of the times exist” and 5 represents “always exist”, indicate the current level of existence of each of the requirements for introducing and implementing value management in your organisation

S/NO	ENVIRONMENT	LEVEL OF EXISTENCE				
		1	2	3	4	5
1	The Procurement Acts practiced in states we are located or executing projects in, supports value management implementation					
2	Our organization members embrace changes which the organization undergo and the opportunities it brings easily					
3	Our organization do recognize and value the cultures of all other stakeholders participating in a project					
4	We encourage collaborative working arrangement between our organization and others					
5	Our current organizational structure provides an environment that suit the adoption of value management in the management of projects					
6	Recognition and involvement of end-user’s contribution to the arrangements or project processes					
S/NO	PEOPLE	LEVEL OF EXISTENCE				
		1	2	3	4	5
1	Our client is well focused and capable of adopting value management					
2	Our organization is aware of the success recorded by using value management in construction projects elsewhere and its contribution in achieving value for money					
3	We have within our organization people who can conduct value management workshop by acting as “facilitators”.					
4	There is clear definition of roles and responsibilities of each staff working within the organization					
5	We do have staff with the ability to implement newly introduced concept quickly and accurately.					
6	We have confidence in the expertise and competence of other project stakeholders					

S/NO	PROCESS	LEVEL OF EXISTENCE				
		1	2	3	4	5
1	Our procurement and contract strategy is appropriate for value management implementation					
2	We acknowledge and appreciate the benefits of embracing new concepts for improving service delivery					
3	We do participate in an open and effective communication between the project stakeholders					
4	We do attend regular project workshops to discuss progress and concerns about the project					
5	We have change management strategy that will ensure smooth introduction of new techniques					
S/NO	ISSUES/INFORMATION	LEVEL OF EXISTENCE				
		1	2	3	4	5
1	Our client excellently communicates his requirements, needs and wishes to the design team					
2	Value for money is clearly spelt out and understood in carrying out individual projects					
3	Construction programmes are well designed and scheduled					
4	The cost of a project is clearly known in good time					
5	Contract durations are definite and well defined					