ASSESSMENT OF KNOWLEDGE MANAGEMENT PRACTICE AMONG QUANTITY SURVEYING FIRMS IN EDO STATE

AN ESSAY TO BE SUBMITTED TO THE DEPARTMENT OF QUANTITY SURVEYING, AUCHI POLYTECHNIC, AUCHI IN PARTIAL REQUIREMENT FOR THE AWARD OF HIGHER NATIONAL DIPLOMA IN QUANTITY SURVEYING

BY

IKPHEMI STELLA OSHIOTHENOYA

ENV/2182070017

DECEMBER, 2022.

CERTIFICATION

This is to certify that this work ASSESSMENT OF KNOWLEDGE MANAGEMENT PRACTICE AMONG QUANTITY SURVEYING FIRMS IN EDO STATE was undertaken by IKPHEMI STELLA OSHIOTHENOYA in the Department Of Quantity Surveying, Auchi Polytechnic, Auchi .

QS S.B, Oso ……

SUPERVISOR SIGNATURE AND DATE

DR. QS. OGBU CHUKWUEMEA PATRICK ……

EXTERNAL EXAMINER SIGNATURE AND DATE

Acknowledge

My gratitude goes to God Almighty for his infinite mercies, love, and protection throughout my higher National Diploma programme, may his name be praised. My sincere gratitude also goes to my parent Mr and Mrs ikphemi and my beloved sister ikphemi Emike precious for their love, morals, financial support and prayers throughout my period of study, may God blessings be upon you.

My sincere gratitude also goes to my project supervisor QS Oso, S.B and my head of department QS Felix Uwadia and all my lecturers for their tolerance and knowledge they impacted in me, may the good God continue to bless you and your household in Jesus name amen. Also my appreciation goes to my family and friends for their support and assistance in this project work and also to my fellow course mates may you all find success in whatsoever you do in life in Jesus name amen.

Dedication

This project is deducted to God for his infinite Grace, mercy and unending love; he has shown me throughout my higher National Diploma programme.

I also dedicate this project to the my family Mr. and Mrs. ikphemi and to my beloved sister Ikphemi Emike precious and my project supervisor Mr. Oso, S.B also for those who has contribute in one way or the other to the successful completion of my higher National Diploma programme.

TABLE OF CONTENTS

LIST OF TABLES

ABSTRACT

Knowledge Management is defined as activities and process geared towards creation and utilization of knowledge in an organization. Knowledge management is what needs to be done to accomplish our goals faster and more effectively by delivering the right knowledge to the right person at the right time and in the right context. The study aimed to assess knowledge management practices among quantity surveying firms in Edo state. The study, identified the sources of Knowledge available in the construction industry. Sources such as, Technological knowledge, Economic knowledge, Legal knowledge, Mentoring, Directories Research papers, Manuals, Managerial skills, Workplace design, Libraries and other knowledge resources. The preliminary data for this research was collected through a literature review and structured questionnaire and limited to construction firms. Mean Item Score (MIS) were employed for data analysis. The study concludes that Knowledge is a critical factor affecting an organization's ability to remain competitive in the new global marketplace. The findings in this research revealed Knowledge Management activities undertaken in QS firms and categorize them as knowledge acquisition, knowledge creation, knowledge utilization, and knowledge Maintenance. Furthermore the respondents were asked to rank level of awareness of knowledge management in Quantity surveying firms. This study found that the respondents are aware to the application of the knowledge management in their firm. Conclusively from the analyzed data, majority of perceptively take the KM as something that they are familiar with. Finally the respondents were asked to rank the benefits of knowledge management in Quantity surveying firms. Practice efficiency, High level of expertise, Increase flexibility and adaptability, Business growth, Practice efficiency, Effective conflicts handling, Improve decision making, Improve services quality, Rapid and effective problem solving, Improve client's satisfaction, Enhance morale and creativity, Reduce mistakes, Improve overall job performance. The study further recommend Quantity surveying firms should implement a knowledge policy to act as a guide enabling the organization direct its staff in managing knowledge and their application to real practice, This study, recommended that the awareness and importance of KM practices should be disseminated to all QS firms, Most staff that believe in knowledge sharing culture should be sponsored to attend KM practice workshops and seminars, Management should insist that only well edited data and knowledge information should be stored in data bases and external storage devices for reference purposes and mentoring.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Knowledge Management is defined as activities and process geared towards creation and utilization of knowledge in an organization. (Rosenthal-Sabroux & Grundstein, (2008) knowledge management is what needs to be done to accomplish our goals faster and more effectively by delivering the right knowledge to the right person at the right time and in the right context (Ugwu & Ezema 2010). A study carried out by Oke, Ogunsemi, & Adeeko (2013) revealed that the knowledge management adoption is being hindered the most in Nigeria by funding as there is no adequate fund to carry it out. In construction organizations the construction supply chain involves the contractors, suppliers, consultants, clients. The consultants include the Quantity Surveyor, Architect, Engineers. The consultant play the advisory role to the client within the construction industry supply chain and this role is knowledge intensive. (Fong & Choi, 2009) To discharge their professional duties, Quantity surveyors have to apply their knowledge and expertise to provide objective advice and analyses to clients. The quality of their decisions depends on their expert discretion and professional judgment in relation to cost control and contract administration for construction projects. When clients' needs are well communicated between clients' representatives and Quantity surveyors in advance, clients generally receive an excellent professional service from Quantity Surveryors (Fong & Choi, 2009). Mostafa (2010) assessed the importance of putting sustainable development at the core of any knowledge management performance evaluation effort and

proposes a sustainable development-led framework for evaluating knowledge management performance in the university setting.

In the knowledge-based society, organizations often encounter problems as they seek to manage knowledge (Nor & Egbu, 2010). Knowledge management practices and research have grown at a dramatic pace in the last few years (Gray & Meister, 2006). It is increasingly being acknowledged that knowledge management can bring about the much needed innovation and improved business performance the industry requires (Egbu, C., Sturgesand J. & Bates .B, 2000). Failure to capture and transfer knowledge generated from one project, which is usually buried, or lost because people move on, leads to wasted activity and impaired project performance (Carrillo, Anumba & Kamara, 2000).

Quantity Surveying firms are knowledge-intensive organizations that provide expert advice and professional knowledge to clients (Løwendahl, 2000) and the ability of quantity surveyors to meet changing client needs and grow the market for professional services depends on the knowledge base of the profession (Babalola, Ojo, Bello, Adafin & Musa, 2011).Knowledge is the main contributor to the surveyor's portfolio. As a result, effective knowledge management skills can help to improve their expertise (Davis, Watson & Man, 2007). To survive and grow in the future, the quantity surveying profession must respond quickly and creatively to the challenges of accelerating social, technological, economic and environmental change (Davis Egbu, C., Sturgesand J. & Bates .B 2007).Understanding the causes and effect of poor knowledge management may provide an avenue for reducing some of the problems faced by the people involved in the delivery (Cheng & Chiu, 2004).

Based on this reason, knowledge sharing is viewed as a main driver for quantity surveying firms to be competitive (Nor & Egbu, 2010). The need to consciously manage knowledge in an organizational setting is now recognized as important to improving innovation, business performance and client satisfaction. However, it must be stated that the basic focus of is research is to evaluate the assessment of knowledge management implementation among quantity surveying firms in Edo state.

1.2 Statement of Research Problem

Failure to capture knowledge or loss of knowledge acquired in a construction project represents an unnecessary waste of assets. This knowledge may still be present in the organization but may be immersed in documents that are not filed systematically or are no longer available because of personnel leaving the organization (Carillo, 2000). Many construction companies engage in a repeated ineffective practice that leads to sub optimal results, such as low productivity, poor work quality, among others. What is even unfortunate is that they repeat these practices from time to time again with predictable outcomes Carillo (2000) Understanding the causes and effect of poor knowledge management (Cheng & Chiu, 2004) may provide an avenue for reducing some of the problems faced by the people involved in the delivery.

The construction industry is highly fragmented with specialized components each with its objectives, drivers, enablers, practices, and procedures. The efficient flow of information and knowledge is crucial at every stage of the project to ensure that the project achieves necessary coordination and effective communication between all its participants. A great challenge for managers in construction project management is how to handle, store, organize and disseminate effectively all the information needed to design and build a major facility, and it is believed that

more efficient information management is a primary prerequisite for the construction industry to enhance its performance, productivity and perception (Becerik, 2004). The impact of outdated lost or conflicting information, causing delays, mistakes and expensive reworks on overall construction cost can be damaging to the financial position and reputation of a construction organization (Akinsiku, 2012). According to Cheng & Chiu, (2004). The construction industry is becoming more complicated, dynamic and interactive and the need to speed up reflective decision-making on time is fulfilled by utilizing construction information and knowledge which are amongst the most important resources contributing towards managerial decision-making. Despite all the efforts by various stakeholders such as the NIQS and QSRBN to improve the practice of Quantity Surveyors as a profession, there are still so many challenges in the area of knowledge management among people who are into the practice of the profession. Some of the problems that this project will be looking at are ways of generating new knowledge by quantity surveying firms, various means of transferring this knowledge and sustainability of the knowledge generated by quantity surveying firms.

1.3 Research Questions

Having highlighted the various problems in which the construction field faces in the area of knowledge management practices, this research work will, therefore, seek to find answers to the following questions:

i. What are the sources of knowledge available in the construction industry?

ii. Level of awareness of knowledge management in Quantity surveying firms

iii. What is the Knowledge management activities carried out in Quantity Surveying firms

iv. How are knowledge management practices applied to solve problems in Quantity Surveying Firms?

1.4 Aim and Objectives

This research aims to assess knowledge management practices among quantity surveying firms in Edo state to archive this, the specific objectives of this study are to:

i. Identify sources of knowledge available in the construction industry

ii. Identify the knowledge management practice/activities in quantity surveying firms

iii. Assess level of awareness knowledge management practice/activities in of quantity surveying firms

iv. Assess the application of knowledge management practices in quantity surveying firms

1.5 Justification of the Study

In the knowledge-based society, organizations often encounter problems as they seek to manage knowledge. Knowledge management practices and research have grown at a dramatic pace in the last few years (Gray & Meister, 2006). Given the intensively competitive climate, organizations position themselves as knowledge-driven companies, seeking to leverage their knowledge resources to achieve competitive advantage. In view of this, the following researches have been made: A critical study carried out by Chen & Chen (2005) suggest four stages for the process from a bibliographical research on knowledge management processes. The first is knowledge creation, knowledge conversion, knowledge circulation and knowledge application However, organizations are confronted by a variety of knowledge management problems. These problems can be addressed both by identifying the causes and by developing solutions (Alavi & Leidner

2001). Thus, researches carried out by (Annunike, 2011; Aliyu, 2011 & Oyediran, 2011) pointed out the managerial shortcomings of the Nigerian quantity surveying firms, and also suggested possible ways to mitigate the challenges. The suggestions include restructuring of the management structure, service diversification, employee motivation, internationalization and direct job commissioning. Study carried out by van der Forte & Le Jeune (2009) and Nor & Egbu (2010) particularly emphasized that quantity surveying firms should shift away from the traditional organizational structures, bureaucratic and hierarchical structure. It is therefore left to be seen if these suggestions have been yielded to in the Edo state quantity surveying firms, thus the need to examine their management in an empirical research.

Furthermore, the outcome of the study will be of immense value to practicing Quantity Surveyor and other allied professionals who are willing to forge ahead into the discipline of knowledge management. The study will also be relevant to all professionals, government and students carrying out research on knowledge management.

1.6 Scope of the Study

This research is focus mainly on the study of knowledge management practices which applies to quantity surveying firms in Edo state Nigeria. A total number thirty (30) Quantity Surveying firms were selected to examine if knowledge management practices is carried out in the state.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

As we move from the industrial age to the intelligence age, knowledge has become a central force behind a successful firm. With the faster and greater capability to process information in the quantity surveying firms, the amount of knowledge has been exponentially utilized by organization. Organizations try to recognize assets they have that are not being fully utilized. Such assets are employees and their knowledge (Adegbembo et al., 2015). The assets include human skills, experience, knowhow, best practices, databases etc. These assets provide opportunities to cut costs, save design time, and reduce the time to Market (Quintas et al., 1997). Knowledge has become a critical corporate asset (Drucker, 1995). Leonard and Sensiper (1998) define knowledge as 'information that is relevant, actionable and based on least partially on experience. Knowledge is characterized as consisting of data or information that have been organized and processed to convey understanding, experience, accumulated learning, and expertise as they apply to a current problem or activity. Based on various views of knowledge, it is clear that information becomes knowledge when it is combined with context and experience (Adegbembo et al., 2015).

According to knowledge management in QS profession: Knowledge management is a systematic approach to help information and knowledge emerge and flow to the right people at the right time to create value (Marwick, 2001).

Many researchers have classified knowledge management processes into various forms (Goldoni & Oliveira, 2006). Darroch (2003) & Tiwana (2002) divide the knowledge management process

in three parts: acquisition, dissemination, and utilization of knowledge. The knowledge acquisition includes the development process and the making of insights and relations. Dissemination consists on sharing acquired knowledge. Utilization is regarded as the capacity of the organization in applying knowledge generated in new situations. Chen & Chen (2005) suggest four stages for the process from a bibliographical research on knowledge management processes. The first is knowledge creation, knowledge conversion, knowledge circulation and knowledge application. The knowledge management processes proposed by Choi (2005) will be adopted in this study.

They are knowledge acquisition, knowledge creation, knowledge storage, knowledge sharing, knowledge use and knowledge maintenance. This is because two or more researchers have mentioned all other knowledge processes except knowledge maintenance which only Choi (2005) mentioned to be the last process of knowledge management. This is considered valuable because when knowledge is not maintained, the knowledge acquired or created will not be easily retrieved as people are required to spend extra time in digging up the relevant, updated and accurate knowledge.

There are various terms used in describing types of knowledge but the two most familiar are the tacit knowledge and the explicit knowledge. Tacit knowledge is defined as action-based and considered to be the fundamental type of knowledge on which organizational knowledge is built (Bouthillier and Shearer, 2002). According to Oakes (2003) the tacit knowledge is said to be hidden and cannot be easily expressed in papers and hard to share with people. It dwells in the human mind, behavior and perception. It is a kind of knowledge the person in possession of it gains overtime from experiences and exposures which include insights and the sensation of the way things are done. On the other hand, explicit knowledge is defined as knowledge that can be

codified and therefore more easily communicated and shared (Boutherillier and Shearer, 2002). It is referred to as the things an individual knows and can be easily written down; a documented and public; structured and fixed content. Here learning is done by observing, reading or discussing.

2.2 Knowledge Management Processes

Alvavi, et al. (2001) stated that knowledge management concepts existing in different literature differ considerably in terms of numbers and labeling of process rather than the underlying knowledge management concepts. It is important to review the work of Grant (2005) which distinguishes between two key processes, namely the generation of new knowledge and the effective application of new and existing knowledge.

2.2.1 Socialization

Little et al. (2005) defined socialization as the process of converting new tacit knowledge through shared experiences. This can be achieved through sharing and experiences, observing, imitating and brainstorming without criticism. Firms often take advantage of the tacit knowledge embedded in other parties such as contractor or even other quantity surveyors by interacting with them. Shared value is created through a process of socialization, whereby a common identity and collective interpretations of reality are formed.

2.2.2 Externalization

The process of converting tacit knowledge to explicit knowledge is defined as Externalization, which can be achieved through writing, creating metaphors and modeling.

2.2.3 Combination

Combination is a conversion process which referred to forms of explicit knowledge which are conveyed through email, documents, database, meetings and briefing. This involves the collecting of relevant knowledge, distributing and editing or processing to make it more usable to user.

2.2.4 Internalization

Ray, et al. (2005) described Internalization as the process of embodying explicit knowledge into tactic. Through Internalization explicit knowledge created is shared within an organization and converted into tacit by individuals.

2.2.5 Knowledge Management Tools

Very few authors have defined KM tools. A popular definition by Ruggles (1997) describes them as the technologies used to enhance and enable the implementation of the sub-processes of KM, e.g. Knowledge generation, codification and transfer. He further argued that not all KM tools are it based, as a paper, pen or video can also be utilized to support KM.

KM technologies depend heavily on IT as the main platform for implementation. Examples of KM technologies for capturing knowledge are knowledge mapping tools, knowledge bases and case-based reasoning.

Although there is a debate about the degree of importance of such technologies, many organizations consider them as important enablers to support the implementation of a KM strategy (Anumba et al., 2000; Egbu, 2000; Storey & Barnet, 2000). KM technologies consume about one third of the time, effort and money that are required for a KM system and the other

two thirds relate mainly to people and organizational culture (Davenport & Prusak, 1998; Tiwana, 2002). Ruggles (1997) relates the importance of IT tools to their quick evolution, dynamic capabilities and high cost. KM technologies consist of a combination of hardware and software technologies.

A considerable proportion of the rework, delays, mistakes and cost overruns on construction projects can be attributed to poor knowledge management. While many organizations have some elements of knowledge management practice, which are not necessarily labeled as such, there is much more that can be done to improve the construction project delivery process through better management of the knowledge generated on projects and in individual firms. There are serious dangers for companies that ignore knowledge

2.3 Overview of the Management of Quantity Surveying Firms in Nigeria

The earliest organized quantity surveying firm which is a reading firm came into existence in 1785, that is, Henry Cooper and Sons in the UK (Essenwa, 2001). In Nigeria, the earliest quantity surveying firm was established in the late 60s, when quantity surveying graduates from the UK decided to set up independent quantity surveying firms that differs from public quantity surveying practice (Kawu, 2011). In the contemporary time, quantity surveying firms are established by registered quantity surveyors under the Decree 31 of 1986 now CAP 383 of LFN 1990. This is in addition to fulfilling the conditions under Companies and Allied Matters Act 2004. Organizational structures are sets of relations between the roles of an organization (Grossi, Royakkers and Dignum, 2007).

According to Olanipekun (2012), the technical roles in the Nigerian quantity surveying firms are divided among the Principal Partner, Senior quantity surveyors and Junior quantity surveyors.

The Principal Partners direct the firm's strategy, working procedures and standard of deliverable s, seek for business opportunity and are delegated to accept business appointments from clients. The senior quantity surveyors, being the rich in experience in quantity surveying field and close to the management operate at the second level of the organizational hierarchy. The quantity surveyors at the junior level are involved in the actual operation with their involvement in every aspect of projects, from inception to completion. In terms of organizational structuring, most of the quantity surveying firms in Nigeria operates matrix organizations where functional and projectiles structures are entrenched (Olanipekun, 2012). This means that the firms maintain both functional and project departments. The functional departments within quantity surveying firms provide specialized functions based on their disciplinary background. Examples of functional department within quantity surveying firms are the account, administration and the quantity surveying departments. From within the quantity surveying department, quantity surveyors are also assigned to projects; thereby justifying the projectised structure. This is in consonance with the position of Yu (2007) that organisations are made up of divisions and/or departments.

The ICT revolution has already had significant effect on the secretarial output of quantity surveyors where the use of spreadsheets has gained ground and new softwares specific for measurement and quantification are available for computer-aided bill of quantity production (Oke & Ogunsemi, 2009). However, according to Annunike (2011), these new softwares are not yet being used in many quantity surveying offices in Nigeria as a result of affordability problems and insufficient work-flow. Babalola, Ojo, Bello, Adafin & Musa (2011) report that quantity surveying firms possess the following relevant and functional training tools and facilities in adequate quantity. These include relevant and current textbooks, drawings, qualified staff, computers, furniture, international and local journals and internet facilities. However, no

mention is made of the level of use of new software. Aliyu (2011) presents some unpalatable management based practices in the Nigerian quantity surveying firms.

These include rendering service on ex-gratia basis or at best receive some paltry sum to cover parts of their expenses and thereby making majority of firms unable to survive and expand their capacity to bear huge challenges.

The sizes of the Nigerian quantity surveying firms are described as low carrying capacity, mostly one-person or at best; three-person partnerships. Nor & Egbu (2010) describe size of an organization to be the size of workforce or number of employees. Employees in most quantity surveying firms in Nigeria are low in number, and thus boutique sized. This may be connected to the observation of Aliyu (2011) that staffs in quantity surveying firms are poorly trained and paid, resulting to inability to retain specialist knowledge and potentials. Oyediran (2011) on an aspect of managerial tendencies in the Nigerian quantity surveying firms is alarming. It was stated that the fortunes of some quantity surveying firms appeared tied to the fortunes of the architectural practice they have relationships with; in terms of job commission. The ability of the firms to secure commission directly from clients is almost non-existent, a function of the management of the firms.

Evidently, there remains so much to be achieved as far as the management of the Nigerian quantity surveying firms are concerned. Thus, these concerned researchers (Annunike, 2011; Aliyu, 2011 and Oyediran, 2011) have not only pointed out the managerial shortcomings of the Nigerian quantity surveying firms, but also suggested possible ways to mitigate the challenges. The suggestions include restructuring of the management structure, service diversification, employee motivation, internationalization and direct job commissioning. van der Forte & Le

Jeune (2009) and Nor & Egbu (2010) particularly emphasized that quantity surveying firms should shift away from the traditional organizational structures, bureaucratic and hierarchical structure. It is therefore left to be seen if these suggestions have been yielded to in the Nigerian quantity surveying firms, thus the need to examine their management in an empirical research.

2.4 Sources of Knowledge Available To A Quantity Surveyor

According to Willis and Ashworth (1987), the Quantity Surveyor is the person who has major skills in:

2.4.1 Economic knowledge: associated with the assessment of value for money and cost effectiveness in design; relying upon analysis and evaluative techniques necessary for costing, measuring and valuing in order that clients may be advised correctly;

2.4.2 Legal knowledge with a general knowledge of law and a specialist knowledge and interpretation of the law of contract. (This is used in producing contract documentation and in the advice and settlement of contractual matters, disputes and claims);

2.4.3 Technological knowledge: knowledge of the construction process and the methods used in the construction of buildings and other structures, together with an in-depth knowledge of the industry. (This provides a basis for developing other skills);

2.4.4 Managerial skills: the ability to organize the work associated with the construction project and to influence others in the procurement of buildings and structures, together with skills of an administrative function.

According to Abdullah and Haron (2007), there are many roles where a quantity surveyor will apply his/her knowledge in a QS firm, either in their basic roles or additional roles. Their services include:

i. Preparation of preliminary estimates and cost plans;
ii. Preparation of Bills of Quantities/tender documents;
iii. Valuation of works for interim valuations' certificates;
iv. preparation of final accounts;
v. Cost analysis/planning;
vi. Contractual advice;
vii. Additional services provided such as project management, value management and facilities management.

2.5 Knowledge And Quantity Surveying (Qs) Firms

According to Carr-Saunders (1966) a profession may perhaps be defined as an occupation based upon specialized intellectual study and training, the purpose of which is to supply a skilled service or advice to others for a definite fee or salary.

Similarly, QS firms are knowledge-intensive organizations that provide expert advice and professional knowledge to clients (Løwendahl, 2000). The organizational assets reside in the experience and knowledge of staff, rather than in plant and equipment.

There are four essential characteristics of QS firms (Fong and Choi, 2009).

2.5.1. Knowledge-intensive nature

A higher educational qualification is an element required by professions (Lowendahl, 2000). This is reflected in the common belief in the industry that a body of knowledge originates from academic study and practical training in QS firms. Quantity surveyors' skills and expertise are thus the talent of quantity surveying firms and also contribute highly to firms' reputations. As a result, practitioners in these firms are associated with impressive academic backgrounds, supported by either accreditation of professional status from professional institutes or academic achievement in recognized academic institutions.

2.5.2. Advisory nature

It is claimed that altruistic and specialized services to clients are the core services of professionals (Becher, 1999). Quantity surveying firms in Malaysia are mostly private practices that seek to offer consultancy to clients in construction projects. The scope of their services is stretching beyond the traditional framework to suit clients' ever increasing demands. In contrast to these firms there are basic service and also additional service (Abdullah and Haron, 2006) quantity surveying firms that have to shape their service to adapt to different clients and business scenarios. Hence, the quality of situation-specific decisions (Bots and Bruijin, 2002) is a useful indicator to reflect the competence of a professional organization. To discharge their professional duties, quantity surveyors have to apply their knowledge and expertise to provide impartial and objective advice and analyses to clients. The quality of their decisions depends to a large extent on the appropriate exercise of their expert discretion and professional judgment in relation to cost control and contract administration for construction projects. As a result, with clients' needs well communicated between clients' representatives and quantity surveyors in advance, clients

generally receive an excellent professional service from quantity surveyors (Fong and Choi, 2009).

2.5.3. Competence governed by institutions

It is essential for a professional service that a governing professional body is established to maintain the competence and control the standards of conduct of the profession (Bennion, 1969). Therefore, the title of chartered member is taken as recognition of professional competence. The competence of professionally qualified quantity surveyors in Malaysia is well established and regulated by the professional institution, The Board of Quantity Surveyors Malaysia (BQSM). Although many practitioners claim to be quantity surveyors, the title of chartered quantity surveyor is only awarded to those who have passed the professional competence test set by the appropriate institutions. Clients, therefore, have some assurance of the standard of the intangible service they are purchasing under this system.

2.5.4. Code of professional conduct

Quantity surveyors are often involved in managing confidential information, such as tender sums submitted by contractors in construction projects and payments to contractors for work done on site. They have to be fully aware of, and abide by, provisions in the standards of conduct and professional ethics. The Quantity Surveyors Act 1967 (Quantity Surveyors (amendment) Rule, 2004) highlighted that only registered quantity surveyors are permitted to practice as consulting quantity surveyors by the Board. Similarly, the qualification of practitioners in quantity surveying firms is well controlled and recorded under the registers of the institution.

Quantity surveying firms offer cost and contractual expertise to clients. The heavy reliance on the expertise and knowledge of staff sets a standard for outsiders to imitate. Freidson (1994) described these kinds of professional services as esoteric.

2.6 knowledge management practice/activities in quantity surveying firms

According to Thayaparan et al. (2016), the roles of Quantity Surveyors are significant to understand the client needs and focus, development and application of information (knowledge). Patrick and Sonia indicates a clear definition of Quantity Surveying as a professionals that been trained as construction cost consultants. Quantity Surveyors has knowledge on costs, values, labour and material prices, finance, contractual arrangement and legal matters in the construction industry particularly. Quantity Surveying is a profession that creates and share knowledge by managing skills to increase efficiency, enhance leverage of previous knowledge, minimizing mistakes, added value for clients and increase profits for the firms. As project-based professional services organizations that offer client service as their main output, Quantity Surveyors also relies on how they manage knowledge (Irani, 2005). Referring to these previous studies, Quantity Surveying profession has become one of the profession which is design to use the knowledge managing approach as to enhance their capabilities in giving good consultation throughout the time and the economic changes.

According to Maarof (2011), Quantity Surveying is concerned with contractual works and costing on construction projects and they control those works by accurate measurement of the work required. These are the main role of the Quantity Surveyors, traditionally, and they cover a range of activities that related to project management, cost estimation and all contractual work

on any construction projects. The Quantity Surveyors assists start from the design process by systematic application of cost criteria so as to maintain a rational and economic relationship.

In a research carried out by Boon (2001) on the management of quantity surveying firms in New Zealand, five key factors that need to be addressed were pointed out. The key factors provide a plethora of choice for the quantity surveying firms to survive in a market where they experience significant changes in demand conditions. Musa, Oyebisi & Babalola (2010) state that quantity surveying practice globally and in Nigeria specifically, are experiencing dramatic but significant changes in scope and service delivery. Oke, Ibironke & Aje (2010) noted that the changes are not unconnected with the newer clients' demands.

Therefore, the key factors proposed for the survival of quantity surveying firms by Boon (2001) are also advocated for Nigerian quantity surveying firms.

2.6.1 Market orientation

This has to do with flexibility in focusing on the cost management core skills of the firms based on demand conditions. According to Redmond (2012), market orientation is concerned with production of goods that are carefully researched and designed to appeal to customers in the market. Market orientation contrasts with product orientation, in which a product is designed and produced with little or no market research background in the hope that customers will find it attractive

2.6.2 Knowledge base

According to Redmond (2012) this has to do with quantity surveying firms having the right knowledge that will deliver clients' needs. This factor also focuses on the method of acquiring,

using and storing requisite knowledge. Knowledge base is a means of solving problems in a particular field, such as finance, construction, medicine, etc. by using knowledge and analytical rules defined by experts in the field.

2.6.3 Efficiency and price competitiveness

According to Redmond (2012) this refers to the consciousness towards pricing competitively and at the same time; remain efficient. This factor is particularly important during the periods of increased competition among firms for fewer jobs.

2.6.4 Financial resources

This has to do with the quantity surveying firms having sufficient financial resources to meet the needs of the business. Murphy (2011) reiterates this, stating that company finances are important to quantity surveying practice.

2.6.5 Flexibility in cost structure and productive capacity

In crash periods, turbulent economic times or economic boom, this factor advocates responsiveness by way flexibility in cost structure and production capacity. This means that quantity surveying firms should adopt wage structure and employee outputs that respond to economic boom or turbulence, as well as increasing or reduced workloads.

2.7. Reasons for using Knowledge management to enhance Quantity surveying profession

To strive in the future, the quantity surveying profession "must respond quickly and creatively to the challenges of accelerating social, technological, economic and environmental change. An essential element in the future success is the skill and knowledge base at the core of professional practice (RICS, 1991). It is believed that knowledge management is a relatively quicker and

more effective way to enhance quantity surveying professionalism, compared with improving the education of the new generation of quantity surveyors or reformatting of the profession. (These are not mutually exclusive).

The quantity surveying profession is characterized by a wealth of experiential knowledge, which is tacit and cannot be written down easily. It is crucial that quantity surveying firms realize their true potential assets, which can be determined by the knowledge management system as it enables the company to 'know what it knows'. Quantity surveyors are professionals who provide help to clients for the legal and financial problems with their expertise. The more projects quantity surveyors complete the more experience they gain. 'What is needed is a way of remembering the solutions for use in future projects' (British Standard Institution (2003). However, most quantity surveying firms face a problem in that they are losing knowledge due to the retirement or resignation of key personnel. Delong (2005) asserts that 'losing knowledge may have impacts that are very tangible and financially quantifiable, or impacts can be intangible and hard to measure'. With the help of a knowledge management system, knowledge is shared and stored and thus the risk of losing the knowledge can be minimized.

2.8 Benefits Of Knowledge Management

There are high expectations for an organization when it is pursuing knowledge management. Practical experiences with systematic and explicit KM reported by advanced and early adopter organizations indicate that benefits can be substantial.

Most direct benefits tend to be operational while tactical and strategic benefits often are indirect and take longer to realize. According to Liebowitz (2000); Beckman (1997) and Wiig (1999), the benefits of KM are: improved service quality, rapid and effective enterprise-wide problem

solving, improved decision-making, increased revenue, business growth, increased innovation, practice and process improvement, higher levels of expertise and knowledge, increased customer satisfaction, enhanced employee capability and organization learning, increased employee morale, creativity and ingenuity, employee stimulation and motivation, increased flexibility and adaptability and raising the company's professional image. Other benefit's includes, More effective teamwork, Greater certainty and more effective decision making, Fewer mistakes, Less duplication of work, Less waste, Less reliance on the knowledge of key individuals, Faster and easier access to the most relevant and up-to-date information, Improve connections between partners, projects and parts of an organization, More innovative thinking, More authoritative communication, Greater client satisfaction.

2.9 Application of Knowledge Management in Quantity Surveying Firms

To embolden the use of knowledge management the quantity surveying firms should be given a clearer concept of knowledge management and more guidelines for its implementation. The exact knowledge management approach relies heavily on the type and size of the organization. British Standard Institution. (2003) pinpoints the seven critical aspects of developing a knowledge management system in an organization: Describe what is required from the knowledge management program, draw up a strategy , Understand the organization's current knowledge, Enable a knowledge sharing culture, Manage the knowledge content, Use enabling technology, Measure and review the results. Below are some knowledge management techniques which can help manage the knowledge content in quantity surveying firms. It is basically divided into a codification and personalization approach.

2.9.1 Codification Approach

2.9.1.1 Capturing Knowledge

An expert system can help capture the experience and knowledge of experts within the quantity surveying firms before they leave (Liebowitz, 2000). Ashworth & Hogg (2002) and Delong (2004) concur that an expert system can capture the knowledge, e.g. where disagreement amongst experts is settled by negotiation, and such results are refined so as to create artificial intelligence for solving the future problems.

2.9.1.2 Storing Knowledge

To store the explicit knowledge, as firms can develop a database system for storing data such as project details, costs, rates, etc., with an effective search engine for immediate access. This database system makes the wealth of experience immediately available to everyone in the company. The Building Cost Information Service (British Standard Institution) is a good example of a database system. The difficulty inherent in having such a wide variety of data is its access

2.9.1.3 Sharing or transferring Knowledge

Information Technology such as email, Internet, Intranet, Lotus Notes, distribution of printed documents, CD ROMs, etc. are greatly enabled knowledge transfer. But all this technology should be designed to conform to proper human-computer interaction guidelines with respect to cognitive overloads, visualization and' user interface consideration). A user friendly and easy assessed IT system would help to inspire knowledge transfer.

2.9.2 Personalization Approach

2.9.2.1 Capturing Knowledge

According to Liebowitz (2000), the experience, skills and knowledge can be captured by means of interviewing, protocol analysis, questionnaires and surveys and observation and simulation.

2.9.2.2 Storing Knowledge

To store the inexplicit knowledge, the firm can adopt the Knowledge Attic technique, which is similar to having a corporate memory or repository sitting there for possible use (Liebowitz, 2000). The captured knowledge is evaluated and possibly edited before being indexed and stored in the corporate memory. It is used as an archive which can be consulted when needed.

2.11 The potential challenges of Introducing knowledge Management

The concept of knowledge management is ideal, but it does not guarantee success. Liebowitz (2000) suggests some potential challenges for deploying knowledge management: Lack of successful knowledge management model in quantity surveying profession, Unwillingness to change the current operating system, Unwillingness of employees to share their knowledge, Difficult to value the intellectual capital and show the tangible benefits, Misunderstanding knowledge management with information management, Lack of awareness of the potential benefits, Lack of understanding about how to implement a knowledge management strategy, Availability of time and resources, Senior management buy in, Lack of time to make decisions, Lack of awareness that knowledge exists, Difficulties finding appropriate knowledge, The risk of knowledge becoming out of date, A tendency to simply repeat past solutions, A belief that an organisation is too small to accumulate comprehensive knowledge, A reluctance to share

knowledge, or a concern about intellectual property, Lack of awareness by staff that they hold valuable knowledge, Poor writing skills, Concern that the use of recorded knowledge could result in liability for problems.

2.11 Sharing knowledge

Project teams and individuals within an organization should be encouraged and have appropriate means of being able to share their knowledge with others. Some of the ways in which this can be achieved are as follows:

2.11.1 Storytelling: Knowledge can be shared in a less formal, less academic way by presenting stories which are engaging and easy-to understand. This is a particularly good way of sharing personal tacit knowledge. Presentations, talks and workshops are the best avenues for storytelling.

2.11.2 Workplace design: The design of a workplace can encourage greater interaction, and therefore, more sharing of tacit knowledge.

'Breakout spaces', communal areas, meeting rooms, areas of circulation, are all places that can break up the rigidity of the traditional office space and allow for communication and gatherings to occur.

2.11.3 Communities of practice (CoPs) / networking: CoPs are often encouraged by construction firms as they can provide a valuable mechanism for sharing and managing knowledge across projects, organizations and nations. They are networks of people who share common interest in a Particular field of knowledge, who seek to develop and enhance their individual knowledge by sharing within the community. Organizations can encourage

individuals to get involved in CoPs that are particularly relevant to them, or that will most benefit the organisation.

2.11.4 Mentoring: Mentoring is used to pass on knowledge from a more experienced staff member to others.

2.11.5 Directories: Searchable directories of staff setting out their roles, areas of expertise and giving contact details can be a simple way of giving access to tacit knowledge.

2.11.6 Extranets: Explicit knowledge should be organized and stored in a way that makes it accessible to those who wish to use it. On individual construction projects, extranets are commonly used to allow project team members to use and rely on the same shared up-to-date documents and information.

2.11.7 Policies: Where important knowledge should be implemented across an organization, it may become embedded in behavior by the introduction of a policy.

2.11.8 Intranets: Across organizations, intranets are commonly used as the single point of secure access to an organization's knowledge. This can be used alongside databases and other design and accounting packages. Intranets require careful content management procedures so as to ensure the information provided is reliable, up-to-date and easily accessible. It can also be used as a message board to encourage a forum for tacit forms of knowledge to be shared.

2.11.9 Libraries and other knowledge resources: Many organizations' will have their own technical libraries that staff can access to find information, and increasingly there are online resources, available for free or as subscription services those organizations' will sign up to ensure their staff have access to comprehensive, up to date knowledge.

2.12 Level of awareness of knowledge management practice/activities in Quantity Surveying firms

According to Thayaparan et al. (2016), the roles of Quantity Surveyors are significant to understand the client needs and focus, development and application of information (knowledge). Patrick and Sonia indicates a clear definition of Quantity Surveyors as a professionals that been trained as construction cost consultants. Quantity Surveyors have knowledge on costs, values, labour and material prices, finance, contractual arrangement and legal matters in the construction industry particularly. Quantity Surveyors is a profession create and share knowledge by managing skills to increase efficiency, enhance leverage of previous knowledge, minimizing mistakes, added value for clients and increase profits for the firms. As project-based professional services organizations that offer client service as their main output, Quantity Surveyors also relies on how they manage knowledge (Irani, 2005). Referring to these previous studies, Quantity Surveying profession has become one of the profession which by design to use the knowledge managing approach as to enhance their capabilities in giving good consultation throughout the time and the economic changes. According to Maarof (2011), Quantity Surveying is concerned with contractual works and costing on construction projects and they control those works by accurate measurement of the work required. These are the main role of the Quantity Surveyors, traditionally, and they cover a range of activities that related to project management, cost estimation and all contractual work on any construction projects. The Quantity Surveyors assists start from the design process by systematic application of cost criteria so as to maintain a rational and economic relationship between cost, quality, utility and appearance which thus helps in achieving the client's requirements within the agreed budget. As we know, according to the RIBA Plan of Works, the Quantity Surveyor is responsible starts from the inception stage where

he should know all about client's project and from that he can make the feasibility studies on that particular project.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is the specific procedures or techniques used to identify, select, process, and analyze information about a topic. In a research paper, the methodology section allows the reader to critically evaluate a study's overall validity and reliability. The methodology section answers two main questions: How was the data collected or generated? And how was it analyzed?

3.2 Research Design

The procedures and techniques employed to answer the research problem or question. It entails choosing the subjects who would participate in the study, the techniques and approaches for collecting data from the subjects and the procedures for collecting the information. A Research design will be adopted for this study. Kothari, (2004), argues that a research design constitutes the blueprint for the collection, management, measurement and analysis of data. Orodho (2003) defines it as the scheme, outline or plan of action that is used to generate answers to research problems.

3.3 Research Population

The population of this research consists of quantity surveyors from different firms in Edo state. There are seventy five (75) quantity surveyors from different firms in Edo state chosen in order of their availability that will be used for this research work. There are selected depending on their exposure to knowledge management practices in their various firms.

Table 3.1: population of Quantity Surveyors from different firms in the study area

Respondents (firms in Edo state)	population
Uloho & Company	10
Sim Bamawo & CO.	15
Silva Alele & CO	14
P.N Akharume & Company	12
P.Ikem &Partners	11
Okotie & CO	13
Total	75

3.4 Sampling Frame

Sampling frame is the list containing the records of members of population of the Study and from which samples can be drawn (Morenikeji, 2006). The sample frame for the study constituted Quantity surveying firms, In Edo state Nigeria.

Table 3.2 showing sampling of each category of respondents

Respondents (firms in Edo state)	Population
Uloho & Company	10
Sim Bamawo & CO.	15
Silva Alele & CO	14
P.N Akharume & Company	12
P.Ikem &Partners	11
Okotie & CO	13
Total	75

3.5 Sample Size

Kothari, (2005) defines sample as a small group of respondents drawn from a population about which a researcher is interested in getting information so as to arrive at a conclusion. The study selected respondent among quantity surveyors chosen from different firms who are willing to participate in the study.

According to Brandon as cited in Ebekozien (2012), there are several approaches to determining the sample size. These include using a census for population, initiating a sample size of similar studies, using published tables, and applying formula to calculate a sample size. A census was used to determine sample size for the population, since census is good for small population.

Table 3.3: Sample Size

Respondents (firms in Edo state)	Population
Uloho & Company	10
Sim Bamawo & CO.	15
Silva Alele & CO	14
P.N Akharume & Company	12
P.Ikem &Partners	11
Okotie & CO	13
Total	75

3.6 Sampling Technique

The process of sampling or selection of population from which characteristics of the population can be inferred, has long been accepted as a legitimate and efficient method of research. The main objective of sampling is to provide a practical means of achieving data collection and processing, comment of research to be carried out whilst ensuring that the sample provides a good representation of the population, which is the sample (Fellows and Liu, 2005). For the

purpose of this research stratified random sampling technique will be used in collecting data. Cresswell (2005) defines stratified random sampling as a subset of individuals that are randomly selected from a population. The goal is to obtain a sample that is representative of the larger population.

3.7 Data Collection Instrument

Research instruments are mainly used for data collection which provides the information for answering the research questions earlier drawn for the study. Research instrument also refers to the measuring device such as test, questionnaires, scales, checklist, inventories, observation and interview. For the purpose of this research, well-structured questionnaire was administered for the collection of information in order for easy and detailed data analysis. The questionnaire is a device for getting answers to questions by using a form which the respondents, fill by him or her.

3.8 Method of data presentation and Analysis

Data were analyzed during the course of this research using the quantitative research survey method. Quantitative data is defined as the value of data in the form of counts or numbers where each data-set has a unique numerical value associated with it. Quantitative data is usually collected for statistical analysis using surveys, polls or questionnaires sent across to a specific section of a population.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter presents the result and analysis of the data obtained for the purpose of the study in accordance with the objectives for the study. A total of 75 questionnaires were administered and 65 recovered successfully.

The findings were analyzed and presented in the form of frequency tables, numerical values and percentages generated through Statistical Package for Social Science (SPSS).

4.2 Demographic information of the respondent

Table 4.2.1: Type of Organization

Types of Organization	Frequency	% of Respondent
Public client	30	21.43
Consultant	13	18.58
Contractor	17	38.58
Private client	7	7.14
Other specify	0	0
Total	65	100

From **Table 4.2.1** above the result shows that among the 65 questionnaires that were successfully returned, 15 amounting to (21.43%) of the respondent are public clients, 13 amounting to (18.58%) of the respondents are consultants, 27 amounting to (38.58%) of the respondents are contractors, and 5 amounting to (7.14%) of the respondents are private clients.

Table 4.2.2: Academic Qualifications

Academic Qualification	Frequency	% of respondent
HND	40	38.58
B.SC/B.TECH	15	24.29
PGD	10	4.29
M.SC	5	20.00
PHD	5	20.00
OTHERS	0	0
Total	65	100

From **Table 4.2.2** above, the result shows that among the 65 questionnaires that were successfully returned. 40 respondents amounting to (38.58%) of the respondent are HND, 15 respondents amounting to (24.29%) are B.SC/B.TECH, 5 respondents amounting to (4.29%) are PGD, 5 respondents amounting to (20.00%) are M.SC, and 5 respondent amounting to (12. 86%) PHD.

Table 4.2.3: Participant's work experience

Years of experience	**Frequency**	**% of Respondent**
1-5	35	28.27
6-10	10	25.71
11-15	8	21.43
16-20	22	12.86
Above 20	0	0
Total	65	100

From **Table 4.2.3** above, the result shows that among the 65 questionnaires that were successfully returned, 35 amounting to (28.27%) of the respondents had 1-5 years' work experience, 10 amounting to (25.71%) of the respondents had 6-10 years' work experience, 8 amounting to (21.43%) of the respondents had 11-15 years' work experience, and 22 amounting to (12.86%) of the respondents had 15-20 years.

Table 4.2.4: Number of Projects executed by respondent within the last 10 years

Projects handled	Frequency	% of Respondent
1-5	28	30.00
6-10	15	21.43
11-15	22	12.86
16-20	0	0
Above 20	10	5.71
Total	65	100

From **Table 4.2.4** above, the result shows that among the 65 questionnaires that were successfully returned 28 respondents amounting to (30.00%) of the total sample size have handled 1-5 projects, 15 respondents amounting to (21.43%) have handled 6-10 projects, 22 respondents amounting to (12. 86%) have handled 11-15 projects, and 10 respondents amounting to (5.71%) have handled 20 projects and above.

Table 4.2.5: Profession of Respondent

Profession of Respondent	Frequency	% of Respondent
Architect	40	24.29
Quantity surveyor	20	42.86
Builder	10	21.43

Engineer	5	10.00
Other specify	0	0
Total	65	100

From **table 4.2.5** above, the result shows that among the 65 questionnaires that were successfully returned 20 amounting to (42.86%) of respondents are Quantity surveyors, 40 amounting to (24.29%) of respondents are architects, 10 amounting to (21.43%) of respondents are Builder, and 5 amounting to (10.00%) of respondents are Engineers.

2.2.6. Respondent's professional membership status

Membership statues	**Frequency**	**Percentage**
Fellow	21	1.43
Corporate member	18	34.29
Probationer	15	15.71
Others specify	20	48.57
Total	65	100

From **table 4.2.6** above, the result shows that among the 65 questionnaires that were successfully returned, it is shows that 21 amounting to (1.43%) of respondents are fellow members, 18 amounting to (34.29%) of respondents are corporate members, 15 amounting to (15.71%) of respondents are probationer's, and 20 amounting to (48.57%) of respondents are others.

4.2.7. Type of projects handled

Type of project	Frequency	Percentage
Building projects	37	77.14
Civil engineering projects	20	10.00
Heavy engineering projects	6	0
Others specify	5	12.86
Total	65	100

From **table 4.2.7** above, the result shows that among the 65 questionnaires that were successfully returned, 40 amounting to (77.14%) of respondents had handled building projects, 20 amounting to (10.00%) of respondents had handled civil engineering projects, 10 amounting to (0%) of respondents had handled heavy engineering projects, and 5 amounting to (12.86%) of respondents had handled other projects.

Table 4.2.8: identified as sources of Knowledge available in the construction industry.

Identified as sources of Knowledge available	Mean score	Ranking
Technological knowledge	4.47	1
Economic knowledge	4.45	2
Legal knowledge	4.40	3
Mentoring	4.33	4
Directories	4.11	5
Research papers	3.93	6
Manuals	3.80	7
Managerial skills	3.73	8
Workplace design	2.99	9
Libraries and other knowledge resources	2.40	10

Table 4.2.8: shows sources of Knowledge available in the construction industry. Sources such as, Technological knowledge, Economic knowledge, Legal knowledge, Mentoring, Directories were ranked first, second, third, fourth and fifth with mean score of 4.47, 4.45, 4.40, 4.33, 4.11. Research papers, Manuals, Managerial skills, Workplace design, Libraries and other knowledge resources were ranked sixth , seventh, eight, nine and tenth with mean score of 3.93, 3.80, 3.73, 2.99, and 2.40

Table 4.2.9: Identified Knowledge Management activities undertaken in QS firms.

Identified Knowledge Management activities	Mean score	Ranking
Knowledge Acquisition		
Experienced staff supervises new staffs within the firm	5.40	1
Periodic meetings are held within the firm	4.40	2
Job rotation is encouraged within the firm	4.03	3
Firm organises internal job/on job training	3.67	4
Knowledge Creation		
Best practise are identified for future use	4.60	1
Existing knowledge is used to develop new knowledge	4.00	2
Work related ideas and suggestions are encouraged	3.80	3
Meaningful ideas brought by staff are implemented	3.27	4
Knowledge Utilization		
I utilize knowledge to solve most problems encounter	3.53	1
Am encouraged to refer experience to subsequent project	3.27	2
I apply knowledge in developing new service	3.20	3
Knowledge Maintenance		
Specific staff is responsible for regular update of knowledge	3.99	1
Specific staff is assigned to deal with knowledge needs	3.93	2
Specific staff is responsible for maintaining the applicability of know.	3.53	3
Knowledge Storage		
Knowledge is kept in personal reference file	5.40	1
Knowledge is stored in form of documentation	3.84	2
Confidential information has restricted access	3.33	3
Data and Info. are selected and organised before stored	2.40	4

Table 4.2.9; shows Knowledge Management activities undertaken in QS firms. Experienced staff supervises new staffs within the firm, Periodic meetings are held within the firm, Job rotation is encouraged within the firm, Firm organizes internal job/on job training were ranked 1st 2nd 3rd and 4th with mean score of 5.40, 4.40, 4.03, 3.67 under Knowledge Acquisition. Best practise are identified for future use, Existing knowledge is used to develop new knowledge, Work related ideas and suggestions are encouraged, Meaningful ideas brought by staff are implemented, were ranked 1st, 2nd, 3rd and 4th with mean score of 4.60, 4.00, 3.80 and 3.27 under Knowledge Creation. I utilize knowledge to solve most problems encounter, Am encouraged to refer experience to subsequent project, I apply knowledge in developing new service. Specific staff is responsible for regular update of knowledge, Specific staff is assigned to deal with knowledge needs, Specific staff is responsible for maintaining the applicability of know. Knowledge is kept in personal reference file, Knowledge is stored in form of documentation, confidential information has restricted access, Data and Info. Are selected and organised before stored with mean score of 3.53, 3.27, 3.20, 3.99, 3.93, 3.53, 5.40, 3.84, 3.33, 2.40.

Table 4.2.10: Level of awareness of knowledge management in Quantity surveying firms.

Identified Level of awareness	Mean score	Ranking
Knowledge Management occurs within the firm	4.40	1
Knowledge Management involves activities such as creation, storage, dissemination, utilization and maintenance of knowledge	4.29	2
Knowledge Management reduces risk in a firm	4.13	3
Knowledge Management reduces problem solving time	4.00	4
Lack of sharing knowledge leads to waste of resources	3.73	5
Knowledge Management helps improve the effectiveness and sustained viability of the firm	3.48	6
The firm has a unit/officer in charge of Knowledge Management	3.43	7
Efficient Knowledge Management is essential in achieving the aim and objectives of a firm	3.33	8
Knowledge Management obstructs the flow of knowledge	3.33	9
Knowledge Management better prepares for and anticipates the future	3.00	10
Knowledge Management increases the revenue of a firm	2.99	11

Table 4.2.10; shows Level of awareness of knowledge management in Quantity surveying firms. The table reveals Knowledge Management occurs within the firm, Knowledge Management involves activities such as creation, storage, dissemination, utilization and maintenance of

knowledge, Knowledge Management reduces risk in a firm, Knowledge Management reduces problem solving time, Lack of sharing knowledge leads to waste of resources, Knowledge Management helps improve the effectiveness and sustained viability of the firm, The firm has a unit/officer in charge of Knowledge Management, Efficient Knowledge Management is essential in achieving the aim and objectives of a firm, Knowledge Management obstructs the flow of knowledge, Knowledge Management better prepares for and anticipates the future, Knowledge Management increases the revenue of a firm. Were ranked 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, and 11th. With mean scores of 4.40, 4.29, 4.13, 4.00, 3.73, 3.48, 3.43, 3.33, 3.33, 3.00, 2.99.

Table 4.2.10: Application of knowledge management practice in Quantity surveying firms.

Identified Application of knowledge management practice	Mean score	Ranking
Knowledge on construction methods	3.93	1
Capturing Knowledge	3.92	2
Knowledge Use	3.60	3
Knowledge on document interpretation	3.52	4
Sharing or transferring Knowledge	3.51	5
Knowledge Creation	3.36	6
Knowledge Maintenance	3.07	7
Storing Knowledge	2.87	8

Source: Field Survey (2022)

Table 4.2.10; shows Application of knowledge management practice in Quantity surveying firms. Knowledge on construction methods, Capturing Knowledge, Knowledge Use, Knowledge on document interpretation, Sharing or transferring Knowledge, Knowledge Creation, Knowledge Maintenance, Storing Knowledge. Were ranked 1st, 2nd, 3rd, 4th, 5th, and 6th, with mean scores of 3.93, 3.92, 3.60, 3.52, 3.51, 3.36, 3.07, and 2.87.

Table 4.2.11: Benefits of knowledge management in Quantity surveying firms.

Identified Benefits of knowledge management	**Mean score**	**Ranking**
Practice efficiency	4.07	1.
High level of expertise	4.00	2.
Increase flexibility and adaptability	4.00	3.
Business growth	3. 81	4.
Practice efficiency	4.07	5.
Effective conflicts handling	3.80	6.
Improve decision making	3.65	7.
Improve services quality	3.60	8.
Rapid and effective problem solving	3.57	9.
Improve client's satisfaction	3.51	10.
Enhance morale and creativity	3.33	11.
Reduce mistakes	3.33	12.
Improve overall job performance	3.13	13.

Table 4.2.11: shows Benefits of knowledge management in Quantity surveying firms. Practice efficiency, High level of expertise, Increase flexibility and adaptability, Business growth, Practice efficiency, Effective conflicts handling, Improve decision making, Improve services quality, Rapid and effective problem solving, Improve client's satisfaction, Enhance morale and creativity, Reduce mistakes, Improve overall job performance Were ranked 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th,12th and 13th. With mean scores of 4.07, 4.00, 4.00, 3.81, 4.07, 3.80, 3.65, 3.60, 3.57, 3.51, 3.33, 3.33 and 3.13.

4.3 Discussion

The respondents ranked Technological knowledge as the highest source of knowledge available in the construction industry with mean score of 4.47. Technology has been an integral part in our lives; we can't really do our day-to-day activities without it. Technology's impact is so vast that it influenced how we communicate and how we learn new things. When it comes to the construction industry today, it's so beneficial to accept these technological advances and use it for better rewards. Economic knowledge was ranked 2nd with mean score of 4.45, associated with the assessment of value for money and cost effectiveness in design; relying upon analysis and evaluative techniques necessary for costing, measuring and valuing in order that clients may be advised correctly, Legal knowledge was ranked 3rd with mean score of 4.40 with a general knowledge of law and a specialist knowledge and interpretation of the law of contract. (This is used in producing contract documentation and in the advice and settlement of contractual matters, disputes and claims); other sources ranked by the respondents are Mentoring, Directories Mentoring, Directories Research papers, Manuals, Managerial skills, Workplace design, Libraries and other knowledge resources were ranked 4th, 5th, 6th, 7th, 8th, 9th and 10th with mean score of 4.33, 4.11 3.93, 3.80, 3.73, 2.99, and 2.40.

The respondents were further asked to rank Knowledge Management activities undertaken in QS firms. The study revealed that all Knowledge Management activities are current in QS firms. The findings show that in acquiring knowledge, the firm's places emphasis on experienced staff supervising new staffs within the firm, periodic meetings within the firm and job rotation. It also gathered that identified practice are best for future use, existing knowledge are used to develop new knowledge, work related ideas and suggestions are encouraged, meaningful ideas brought by staff are implemented are the best ways to create Knowledge. It was observed that data and information are kept in personal reference file, stored in form of documentation, confidential information restricted, selected and organized before stored. This is in agreement with Choi (2005) who submitted that speedy and reliable knowledge retrieval system may help an organizations competitive strength. Knowledge is found to be stored in form of documentation and in external storage device. However, Specific staff is responsible for regular update of knowledge was ranked highest among the various methods of knowledge maintenance.

The respondents were further asked to rank Level of awareness of knowledge management in Quantity surveying firms. This study found that the respondents are aware to the application of the knowledge management in their firm. Conclusively from the analyzed data, majority of perceptively take the Knowledge Management as something that they are familiar with. It was observed that quantity surveyors in QS firms are strongly aware that Knowledge Management occurs within the firm, Knowledge Management involves activities such as creation, storage, dissemination, utilization and maintenance of knowledge, Knowledge Management reduces risk in a firm, Knowledge Management reduces problem solving time, Lack of sharing knowledge leads to waste of resources, Knowledge Management helps improve the effectiveness and sustained viability of the firm, The firm has a unit/officer in charge of Knowledge Management,

Efficient Knowledge Management is essential in achieving the aim and objectives of a firm, Knowledge Management obstructs the flow of knowledge, Knowledge Management better prepares for and anticipates the future, Knowledge Management increases the revenue of a firm. This in line with Oke, Ogunsemi and Adeeko (2013) in their study also revealed that all Construction professionals have heard of knowledge management at one time or the other and have it in place in their organizations.

Lastly, based on the Benefits of knowledge management practices in quantity surveying firms, the respondents ranked Practice efficiency, as highest with mean score of 4.07; this is followed by high level of expertise, with mean score of 4.00. other benefits revealed by the respondent's includes Increase flexibility and adaptability, Business growth, Practice efficiency, Effective conflicts handling, Improve decision making, Improve services quality, Rapid and effective problem solving, Improve client's satisfaction, Enhance morale and creativity, Reduce mistakes, Improve overall job performance. This in line with Ali, Idowu & Adamu (2019) in their study also revealed that Knowledge Management benefits are highly important to QS firms practicing Knowledge Management in their respective firms.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

Knowledge is a critical factor affecting an organization's ability to remain competitive in the new global marketplace. The findings in this research revealed sources of Knowledge available in the construction industry. Sources such as, Technological knowledge, Economic knowledge, Legal knowledge, Mentoring, Directories, Research papers, Manuals, Managerial skills, Workplace design, Libraries and other knowledge resources. The study has been able to reveal that Knowledge Management activities undertaken in QS firms and categorize them as knowledge acquisition, knowledge creation, knowledge utilization, and knowledge Maintenance. Furthermore the respondents were asked to rank level of awareness of knowledge management in Quantity surveying firms. This study found that the respondents are aware to the application of the knowledge management in their firm. Conclusively from the analyzed data, majority of perceptively take the KM as something that they are familiar with. Finally the respondents were asked to rank the benefits of knowledge management in Quantity surveying firms. Practice efficiency, High level of expertise, Increase flexibility and adaptability, Business growth, Practice efficiency, Effective conflicts handling, Improve decision making, Improve services quality, Rapid and effective problem solving, Improve client's satisfaction, Enhance morale and creativity, Reduce mistakes, Improve overall job performance Were ranked 1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th}, 6^{th}, 7^{th}, 8^{th}, 9^{th}, 10^{th}, 11^{th},12^{th} and 13^{th}. With mean scores of 4.07, 4.00, 4.00, 3.81, 4.07, 3.80, 3.65, 3.60, 3.57, 3.51, 3.33, 3.33 and 3.13.

5.2 **Recommendations**

i. Employees within the firms should be encouraged to see maintenance as a vital issue in KM so as to ensure continuous update of knowledge to remain effective in practice.

ii. That all QS professional bodies should be encouraged to organize seminars and workshops on KM practices for practitioners.

iii. Quantity surveying firms should implement a knowledge policy to act as a guide enabling the organization direct its staff in managing knowledge and their application to real practice.

iv. This study, recommended that the awareness and importance of KM practices should be disseminated to all QS firms.

v. Most staff that believe in knowledge sharing culture should be sponsored to attend KM practice workshops and seminars.

vi. Management should insist that only well edited data and knowledge information should be stored in data bases and external storage devices for reference purposes and mentoring.

REFERENCES

Abidin, N.Z., Yusof, N., Hassan, H. & Adros, N. (2010). Applying competitive strategy in quantity surveying firms: An evolving process. *Asian Journal of Management Research*, 2(1), 61-73.

Aliyu, M. (2011). Need for Specialisations / Faculties in Quantity Surveying Practice. A paper Presented at the 2011 Quantity Surveying Assembly and Colloquium held at Shehu Musa Yar'Adua Centre, Abuja, Nigeria on 28th-29th September.

Argyris, C., and SCHON, D.A., (1974). Theory in Practice: Increasing Professional Effectiveness. San Francisco: Jossey-Bass.

Ashworth, A., and Hogg, K., (2002). Willis's practice and procedure for the quantiy surveyor (Eleventh Edition). Oxford: Blackwell Science Ltd.

Babalola, M.O., Ojo, G.K., Bello, W., Adafin, J.K. & Musa, N. (2011). Training Tools and Needs for Quantity Surveying Education and Training. A paper Presented at the 2011

Barlow, J., and Jashspsra, A., (1998). Organisational Learning and Inter-firm 'Partnering' in the UK Construction Industry [online]. The Learning Organisation, 5(2), pp. 86-98.

Grönroos, C. (2007). Service Management and Marketing: Customer Management in Service Competition, 3 rd ed., West Sussex, England, John Wiley & Sons.

Grossi, D., Royakkers, L. & Dignum, F. (2007). Organizational Structure and Responsibility: An analysis in a Dynamic Logic of Organized Collective Agency. Artificial Intelligence Law, **15,** 223-249.

Murphy, R. (2011). Strategic Planning in Irish Quantity Surveying Practices. Doctoral Research Thesis (Unpublished), submitted to the Edinburgh Business School, Heriot Watt University, UK.

Musa, N.A., Oyebisi, T.O. & Babalola, M.O. (2010). A Study of the Impact of Information and Communications Technology (ICT) on the Quality of Quantity Surveying Services in Nigeria. *The Electronic Journal on Information Systems in Developing Countries,* **42** (7), 1-9.

Nor, F.M., Mohamed, O. & Egbu, C. (2011). Knowledge Sharing Initiatives in Quantity Surveying Firms in Malaysia: Promoting, Inhibiting and Challenge Factors. Retrieved on 12 September, 2013 from http://www.arcom.ac.uk/-docs/proceedings/ar2011

Oke, A. E, Ibironke, O. T. & Aje, I. O. (2010) Perception of construction professionals to the competencies of Nigerian quantity surveyors. *Journal of Building Performance, Malaysia*, **1**(1), 64-72

Oke, A. E. & Ogunsemi, D. R. (2009). Competencies of quantity surveyors as value managers in a developing economy. Proceeding of the Construction and Building research conference of the Royal Institute of Chartered Surveyors held at the University of Cape Town, South Africa, 10 – 11 September, Pp 23 – 38

Olanipekun, A.O. (2012). Effects of Organisational Culture on the Performance of Quantity Surveying Firms in Lagos, Nigeria. Master Degree Thesis (Unpublished) submitted to the School of Postgraduate Studies, Federal University of Technology, Akure, Nigeria.

Alauddin, K., London, K and Maqsood, T., (2012), The Development of an Intellectual Capital Project Success Framework, Third International Conference on Construction in Developing

Atapattu, C. and Senaratne, S. (2013), A Tool For Effective Transferring Of Knowledge And Technology in Contracting Organizations- dl.lib.mrt.ac.lk

Bakri, AS, Ingirige, MJB and Amaratunga, RDG 2010, Key issues for implementing knowledge management in relational contracting project settings, in: CIB 2010, 10th-13th May 2010, University of Salford

Bhojaraju, G. (2005). Knowledge Management: Why Do We Need It For Corporate. Malaysian Journal of Library & Information Science, 10(2), pp.37-50.

Bratianu, C. (2010). A critical analysis of the Nonaka's model of knowledge dynamics.pp.115-120.

Chen, L. and Mohamed, S. (2013), Impact of Organizational Cultural Factors on Knowledge Management in Construction, The Joint International Conference on Construction, Culture, Innovation and Management (CCIM), The British University in Dubai, The Conference Centre, Knowledge Village, Dubai.

Cheng, L.Y and Yun, L.H. (2011), Developing Project Communities of Practice- Based Knowledge Management System in Construction, Automation in Construction, pp 422 432

Davis, R., Watson, P. and Man, C.L.(2007), Knowledge Management For The Quantity Surveying Profession, Strategic Integration of Surveying Services FIG Working

Fadhilah, M.N. and Egbu C. (2010), An Insight Into Knowledge Sharing Practices in Quantity Surveying Firms in Malaysia, Procs 26th Annual ARCOM Conference, 6-8 September

Frost, A. (2014). Knowledge Management Tools. [online] Knowledgemanagement- tools.net. Available at: http://www.knowledgemanagement-tools.net/ [Accessed 17 July 2014].

Hey, J. (2004). The Data, Information, Knowledge, Wisdom chain : The Metaphorical Link. Intergovernmental Oceanographic Commission.

Irani, Z. (2005), Management of Knowledge in Project Environment, Elsevier Butterworth Heinemann, pp 103-131

Koenig, M.E.D (2012), What is KM? Knowledge Management Explained, KM Worl Magazine. Online : http://www.kmworld.com. Accessed : 18th March 2014.

APPENDIX

Quantity Surveying Department,
School of Environmental Studies,
Auchi Polytechnic,
P.M.B 13, Auchi,
Edo State.

Dear Respondent,

REQUEST FOR COMPLETION OF QUESTIONNAIRE

I am a final year student of the above named institution currently carrying out a research on the topic "**ASSESSMENT OF KNOWLEDGE MANAGEMENT PRACTICE AMONG QUANTITY SURVEYING FIRMS IN EDO STATE"**.

The topic was chosen because of the need to understand knowledge management practice among quantity surveying firms in edo state.

Your assistance in completing this questionnaire is therefore needed so that the objectives of the research can be achieved. Information given will be treated confidentially and strictly used for academic purpose

Thanks in anticipation

Researcher

IKPHEMI STELLA OSHIOTHENOYA

08111602768

SECTION A: DEMOGRAPHIC INFORMATION OF RESPONDENT.

Please tick (√) in the appropriate box that corresponds to your response.

1. Kindly indicate your type of organization

(a) Public client { } (b) consultant { } (c) contractor { } (d) private client { } (e) others specify _____

2. Academic Qualification of respondent

(a) HND. { } (b) B.Sc/B.Tech { } (c) PGD { } (d) M.Sc/M.Tech { } (e) PhD{ } (f) others specify { }

3. Respondent's Years of Experience

(a) 1-5 years{ } (b) 6-10years{ } (c) 11-15years{ }(d) 16-20years { } (e) Above 20 years { }

4. Numbers of projects executed within the last ten years

(a) 1-5 projects { } (b) 6-10 projects { } (c) 11-15 projects { } (d) 15-20 projects {] (e) above 20 projects { }

5. Respondent's Profession

(a) Architecture { } (b) Quantity Surveying { } (c) Building Technology{ } (d) Engineering { } (e) others specify.....

6. Respondent's professional membership status

Membership grade	**NIA**	**NIQS**	**NIOB**	**NSE/COREN**
Fellow member				
Corporate member				
Probationer				
Others specify				

7. Type of projects handled

(a) Building projects { } (b) Civil Engineering { } (c) Heavy Engineering { } (d) Others specify .....

SECTION B

8. The following have been identified as sources of Knowledge available in the construction industry. Kindly rank them, by ticking (√) the appropriate box based on the level of significance using a scale of 5-1 provided.

(5- most significant, 4- very significant, 3- significant, 2- less significant, 1- not significant)

		LEVEL OF SIGNIFICANCE				
s/n	**Identified sources of Knowledge**	**5**	**4**	**3**	**2**	**1**
i.	Research papers					
ii.	Workplace design					
iii.	Mentoring					
iv.	Directories					
v.	Libraries and other knowledge resources					
vi.	Economic knowledge					
vii.	Legal knowledge					
viii.	Technological knowledge					
ix.	Managerial skills					
x.	Manuals					
	Others please specify					
i.						
ii.						
iii.						
iv.						
v.						

9. The following have been identified as Knowledge Management activities undertaken in QS firms. Kindly rank them, by ticking (√) the appropriate box based on the level of significance using a scale of 5-1 provided.

(5- most significant, 4- very significant, 3- significant, 2- less significant, 1- not significant)

		LEVEL OF SIGNIFICANCE				
s/n	**Knowledge Management activities**	**5**	**4**	**3**	**2**	**1**
1	**Knowledge Acquisition**					
i.	Experienced staff supervises new staffs within the firm					
ii.	Periodic meetings are held within the firm					
iii.	Job rotation is encouraged within the firm					
iv.	Firm organises internal job/on job training					
2	**Knowledge Creation**					
i.	Work related ideas and suggestions are encouraged					
ii.	Existing knowledge is used to develop new knowledge					
iii.	Best practise are identified for future use					
iv.	Meaningful ideas brought by staff are implemented					
3	**Knowledge Utilization**					
i.	Am encouraged to refer experience to subsequent project					
ii.	I utilize knowledge to solve most problems i encounter					
iii.	I apply knowledge in developing new service					
4	**Knowledge Maintenance**					
i.	Specific staff is responsible for regular update of knowledge					
ii.	Specific staff is responsible for maintaining the applicability of know.					
iii.	Specific staff is assigned to deal with knowledge needs					
5	**Knowledge Storage**					
i.	Data and Info. are selected and organised before stored					

ii.	Knowledge is stored in form of documentation					
iii.	Confidential information has restricted access					
iv.	Knowledge is kept in personal reference file					

10. The following have been identified as Level of awareness of knowledge management in Quantity surveying firms. Kindly rank them based on the level of awareness by ticking the appropriate box (√) using a scale of 5-1.

(5- highly aware 4-very aware 3- Aware 2- Less aware 1-Not aware)

		level of awareness				
s/n	**Level of awareness of knowledge**	**5**	**4**	**3**	**2**	**1**
i.	KM involves activities such as creation, storage, dissemination, utilization and maintenance of knowledge					
ii.	KM reduces problem solving time					
iii.	KM reduces risk in a firm					
iv.	Efficient KM is essential in achieving the aim and objectives of a firm					
v.	KM obstructs the flow of knowledge					
vi.	KM better prepares for and anticipates the future					
vii.	KM helps improve the effectiveness and sustained viability of the firm					
viii.	KM increases the revenue of a firm					
ix.	Lack of sharing knowledge leads to waste of resources					
x.	KM occurs within the firm					
xi.	The firm has a unit/officer in charge of KM					

11. The following have been identified as application of knowledge management practice in Quantity surveying firms. Kindly rank them based on the level of application by ticking the appropriate box (√) using a scale of 5-1

(5- frequently, 4- often, 3-sometimes, 2- less often, 1- not at 'all)

		Frequency				
s/n	**Identified application of knowledge management**	**5**	**4**	**3**	**2**	**1**
i.	Capturing Knowledge					
ii.	Storing Knowledge					
iii.	Sharing or transferring Knowledge					
iv.	Knowledge Creation					
v.	Knowledge Use					
vi.	Knowledge on construction methods					
vii.	Knowledge Maintenance					
viii.	Knowledge on document interpretation					
	Others please specify					
i.						
ii.						
iii.						
iv.						
v.						

12. The following have been identified as Benefits of knowledge management in Quantity surveying firms. Kindly rank them based on the level of importance by ticking the appropriate box (√) using a scale of 5-1.

(5-very important 4-Important 3-Slightly important 2- Less important 1-Not important)

		level of importance				
s/n	**Benefits of knowledge management**	**5**	**4**	**3**	**2**	**1**
i.	High level of expertise					
ii.	Enhance morale and creativity					
iii.	Practice efficiency					
iv.	Effective conflicts handling					
v.	Business growth					
vi.	Increase flexibility and adaptability					
vii.	Improve client's satisfaction					
viii.	Reduce mistakes					
ix.	Improve services quality					
x.	Improve overall job performance					
xi.	Rapid and effective problem solving					
xii.	Improve decision making					
xiii.	High level of expertise					
xiv.	Enhance morale and creativity					