ASSESSMENT OF ORGANISATIONAL LEADERSHIP FOR KNOWLEDGE MANAGEMENT PRACTICE IN THE NIGERIAN CONSTRUCTION INDUSTRY

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SEPTEMBER, 2014

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A THESIS SUBMITTED TO THE SCHOOL OF POST GRADUATE STUDIES, AHMADU BELLO UNIVERSITY, ZARIA NIGERIA IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE DEGREE IN QUANTITY SURVEYING.

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SEPTEMBER, 2014

DECLARATION

I hereby declare that the work in this thesis titled **"Assessment of Organisational Leadership for Knowledge Management Practice in the Nigerian Construction Industry"** was carried out by me in the Department of Quantity Surveying under the supervision of **Dr Y.M. Ibrahim** and **Dr A.D. Ibrahim.**

The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this thesis has been presented for another degree or diploma at this or any other institution.

Nzekwe, Kene Christopher Lawrence _____ _____

Name Signature Date

DEDICATION

This work is dedicated to my lovely wife, Mukosolu for her support and to our Children: Tochukwu Daniel, Chidubem Joshua and Chiemelie Praise.

CERTIFICATION

This thesis entitled ASSESSMENT OF ORGANISATIONAL LEADERSHIP FOR KNOWLEDGE MANAGEMENT PRACTICE IN THE NIGERIAN CONSTRUCTION INDUSTRY by Kene Christopher Lawrence NZEKWE meets the regulations governing the award of the degree of MSc in Quantity Surveying of the Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation.

Dr. Y.M. Ibrahim	_____	_____
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ACKNOWLEDGMENT

With gratitude to Almighty God who through His only begotten Son Jesus Christ enabled me to carry out this study. I wish to most profoundly thank my supervisors Dr. Y.M. Ibrahim and Dr. A.D. Ibrahim for their guidance, commitment and directions throughout the course of this study. I appreciate all your contributions and constructive criticisms. Special thanks go to Mr. B.A. Kolo for his constant encouragement and advice. I register my deep appreciation to Dr (Mrs.) K.J. Adogbo for all her contributions and support. In fact my sincere thanks to all my departmental lecturers who individually and collectively in the course of this study had in one way or the other rendered invaluable support and advice.

The non – academic staff of the Department of Quantity Surveying, I thank you all for your encouragement and friendship in the course of my study. I wish to also thank my colleagues in the MSc Class of 2011/2012 academic session for your individual contributions and intellectual criticisms; two out of my colleagues deserve special mentioning, Hassan Ahmadu and Jesse Amadosi. I appreciate you all.

I would like to specially thank my wife, Mukosolu for her care, support and understanding throughout the period of this study. Special thanks also go to my children, Tochukwu, Chidubem and Chiemelie who in many ways assisted me during the course of this study.

I will like to thank Partners and Staff of Bill Cost Development Partnership for their understanding and support most especially my Partner Mr. David Onyeoguzoro for all his invaluable insights. I wish to also thank all my friends too numerous to list for their support and encouragement in the course of this study.

I would like to acknowledge the contributions of Prof. T.C. Mogbo who in many ways encouraged me to embark on the MSc programme at ABU, Zaria.

Lastly the willingness and commitment of each participant/respondent for taking the time to complete the questionnaire is highly appreciated.

ABSTRACT

The Nigeria Construction Industry (NCI) is characterised as slow to innovation and lacks the capacity to deliver when juxtaposed with other developing countries with similar developmental challenges at about the 1970s; despite the industry state in Nigeria, researches have continued to suggest ways of improving service delivery in the industry. One of such ways is the massive campaigning from research and industry for the NCI to adopt concepts of Knowledge Management (KM) to improve service delivery. The aim of this study was to assess organisational leadership for the adoption of KM practice in the NCI. The objectives of the study are; to identify the attributes of leadership behaviours and KM; to establish the leadership behaviours exhibited by consulting firms in the NCI; to establish whether the consulting firms in the NCI exhibits KM; and to examine the relationship between leadership behaviours and KM. The instrument used for data collection in this study was a structured questionnaire. The instrument was administered on Senior Management Staff of consulting firms in the NCI. The number of questionnaire completed and returned were 110 which represented 45.9% of the total questionnaire administered (240). The data collected were analysed in the form of descriptive statistics to achieve the study objectives 2 and 3. However, in examining the relationship between leadership behaviours and KM two types of statistical test were employed namely; the t-test and Pearson product-moment correlation coefficient. The results obtained from the analysis showed that consulting firms in the NCI agree they exhibit transformational leadership behaviours but disagree to exhibiting transactional and laissez- faire leadership behaviours. Similarly, the results also showed that the consulting firms in the NCI agree they exhibit KM behaviours. The study recommends that consulting firms on the basis of this fact can formally adopt KM practice to improve their competitiveness in the market place and the quality of their service delivery in the NCI.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The Nigeria Construction Industry (NCI) has been described as a '*sleeping giant*' in terms of service delivery and capacity to satisfy the needs of its clients (Kolo and Ibrahim, 2010). There is a consensus among academic researchers and professionals that the Nigeria Construction Industry (NCI) is slow to innovation (Odediran et al., 2012) and lacks the capacity to deliver. Kolo and Ibrahim (2010) buttressed the '*sleeping giant*' status of the NCI when juxtaposed with other developing countries with similar developmental challenges at about the 1970s, Malaysia, Japan, Korea (Cheah and Ting, 2005), Kenya, Ghana, South Africa (Bowen et al., 2007), and Saudi Arabia (Al-Yami and Price, 2006; Alalshikh and Male, 2009) have long realised the need to improve their service delivery capacity. Despite the industry state in Nigeria, researches have continued to suggest ways of improving service delivery in the industry; one of such ways is the massive campaigning from research and industry for the NCI to adopt concepts of Knowledge Management (KM) to improve the situation (Anago, 2006: Sodiya et al., 2006: NIQS, 2012).

The construction industry is being increasingly challenged to successfully innovate in order to satisfy the aspirations and needs of society and clients and to improve its competiveness (Latham, 1994). The Egan Report (1998) identified five key drivers of change in the construction industry; (i) committed leadership, (ii) a focus on the customer, (iii) integrated process and terms, (iv) a quality driven agenda; and (v) commitment to people. The Egan report aptly captured that leadership was one of the five key drivers of change in the construction industry.

Stogdill (1974) defined leadership as a process whereby an individual supports other group members in learning processes needed to attain group or organisational goals. They however defined leaders as individuals who have a clear idea of what they want to do personally, professionally and the strength to persist in the face of setbacks and failures.

According to Robbins and Judge (2009) a major shift in leadership research came when researchers recognised the need to develop contingency theories that included situational factors. Research has shown that the traditional theories of leadership tend to believe that certain types of leadership behaviours work better in some cultures than in others. It had been suggested that the development of leadership research can be divided into the following stages (Toor, 2009): (i) classical approaches, which include motivation and trait theories, during the first half of the 20th century, (ii) transactional approaches, which include behavioural and contingency theories, during the 1950s and 1960s, (iii) transformational and charismatic leadership theories during the 1970s and 1980s and (iv) developments within the most recent decades. However, new concepts do not replace the earlier approaches but are concurrent with them in practice

Robbins and Judge (2009) cited House et al (2002) the Global Leadership and Organisational Behaviour Effectiveness (GLOBE) research program, which gathered data on approximately 18,000 middle managers in 825 organisations, covering 62 countries. It is the most comprehensive cross-cultural study of leadership ever undertaken. One of the results coming from the GLOBE program is that there are some universal aspects to leadership. Specifically, a number of the elements making up transformational leadership appear to be associated with effective leadership. Literature has amply shown that transformational leadership is a form of leadership behaviour that

is receptive to change management initiative which includes KM. While transactional leadership emphasises primarily on control through rule compliance and maintaining stability within organisation rather than promoting change. Laissez – faire leadership behaviour is the most passive and therefore the least effective of the leadership behaviours.

Crawford (2005) cited in a series of articles, Crawford (1998), Crawford and Strohkirch (1997a, 1997b, 2000), and Crawford, Gould, and Scott (2003) established the argument that transformational leadership was related to personal innovation. In their findings, transformational leaders were significantly more innovative than transactional and laissez-faire leaders.

Innovation is a change management initiative which includes knowledge management (KM). KM is defined as "a process by which knowledge is identified, captured, codified, stored, disseminated (shared/transferred), implemented (adapted, transformed, synthesised) and its impact measured for the benefit of an organisation" (Suresh, 2008). The behavioural manifestation of innovation is the ability to create and manage information and knowledge. Given the substantial relationship between innovation and transformational leadership, research looking at the relationship of the outcome of innovation (knowledge management) and transformational leadership seems more than deserving of investigation (Bryant, 2003; Crawford & Strohkirch, 2002).

Kasimu et al., (2012) developed a KM framework for civil engineering (CE) construction firms in Nigeria which they conclude that the implementation depends on the commitment, attitudinal behaviours, dedication and personal interest of the top management and employees. Their findings suggest that leadership was a key factor for any KM initiative to succeed in the NCI. In the views of Odusami et al., (2003) particularly in the NCI, not much work has been done on leadership.

Assessing leadership for KM in the NCI will reveal if Nigerian consulting firms possess the leadership behaviours that will enhance the adoption KM practice in the NCI.

1.2 Statement of the Problem

The adoption of KM concepts has been suggested by researchers (Anago, 2006: Sodiya et al., 2006: NIQS, 2012) as one of the ways by which service delivery in the NCI can be improved. However, Kasimu et al. (2012) developed a framework for civil engineering (CE) construction firms in Nigeria in which they found that leadership was a key factor for any KM initiative to succeed in the NCI. The NIQS (2012) conclude that to deal effectively with the challenges of project complexities canvassed the need for effective leadership and knowledge of professionals. Bryant (2003) argued that there is a clear relationship between transformational leadership and knowledge management in organizations. The foregoing predispositions by Bryant (2003), Kamisu et al., (2012) and the NIQS (2012) serves as ample motivation for further investigation whether the consulting firms in the NCI possess the leadership behaviours that will facilitate the adoption of KM practice.

1.3 Need for the Study

The need for the study was to empirically reveal if the Nigerian consulting firms possess the leadership behaviours that will enhance the adoption of KM practice in the NCI. The NCI will thus be able to improve its service delivery, since the state of the industry toward full adoption of KM will now be known. A considerable proportion of the rework, delays, mistakes and cost overruns on construction projects which according to Anumba et al.(2007) can be attributed to poor KM, will therefore be reduced to a minimum. More importantly, construction consulting firms in the NCI need to have a highly developed KM system that should enable the capture,

development, maintenance and renewing of the organisation's intangible assets (Anago, 2006). Sodiya et al. (2006) stressed that KM should be considered as a significant issue towards proper utilisation of employees' knowledge and skills across many sectors of the Nigeria economy.

1.4 Aim and Objectives

1.4.1 Aim:

The aim of this study is to assess organisational leadership for the adoption of Knowledge Management (KM) practice in the NCI with a view of improving service delivery.

1.4.2 Objectives:

i. To identify the attributes of leadership behaviours and Knowledge Management.
ii. To establish the leadership behaviours exhibited by the consulting firms in the NCI.
iii. To establish whether the consulting firms in the NCI exhibits Knowledge Management practice
iv. To examine the relationship between leadership behaviours and Knowledge Management.

1.5 Hypotheses

Transformational leadership:

H_0: There is no relationship between transformational leadership and knowledge management in organizations (consulting firms).

H_1: There is relationship between transformational leadership and knowledge management in organizations (consulting firms).

Transactional leadership:

H_0: There is no relationship between transactional leadership and knowledge management in organizations (consulting firms).

H_1: There is relationship between transactional leadership and knowledge management in organizations (consulting firms).

Laissez-Faire leadership:

H_0: There is no relationship between laissez-faire leadership and knowledge management in organizations (consulting firms).

H_1: There is relationship between laissez-faire leadership and knowledge management in organizations (consulting firms).

1.6 Scope and Limitations

1.6.1 Scope

The study focused on consulting firms in the NCI namely; Architectural, Quantity Surveying, Structural Engineering, Electrical and Mechanical Engineering practice firms. The data for the study were obtained from these construction consulting firms based in Kaduna and Abuja; Nigeria. The choice of construction consulting firms was because previous research works have identified them as knowledge – intensive service sectors. The study used Multifactor Leadership Questionnaire (MLQ) form 5X created by Bass and Avolio (2004) and considered only Transformational, Transactional and Laissez – Faire leadership behaviours. The study also used sample questions created by Gamble and Blackwell (2001) for Knowledge Management Inventory a typology of personal KM categories.

1.6.2 Limitations

The following are the limitations from the study:

1) The structured questionnaire used in this study, is not the most flexible method of obtaining responses from the respondents. This is because when handled improperly could be vulnerable to statistical error.
2) The misuse of sampling and weighting can completely undermine the accuracy, validity and project ability of a quantitative research study.
3) The knowledge produced from this study might be too general for direct application to specific local situations, contexts and individual consulting firms.
4) The systematic sampling used in this study has the possibility of losing vital information from the population.

CHAPTER TWO

LITERATURE REVIEW

2.1 Construction Industry

The construction industry, as it is common with most industries is encumbered with problems of efficiency and productivity. Akinsola and Potts, (1998) argued that the problems associated with the construction industry was much greater due to the complex nature of the industry and the unique characteristics of its finished products. The activities of the construction industry have been observed to be highly knowledge - intensive. Egbu and Robinson (2005) cited the research conducted by Windrum et al. (1997) identified design, architecture, surveying and other construction activities as knowledge-intensive service sectors. Anumba et al., (2007) described the construction industry as heterogeneous and diverse, consisting of different organisations, consultants, building materials and product producers, and professionals providing a range of services for clients, customers and the wider community. The industry is dominated by small and medium enterprises (SMEs), which make up over 90% of all organisations, with a relatively small number of large companies.

The industry is so crucial to growth and development of any country's economy; on this basis the industry is often described as a leading economic sector. This accounts for the importance of the construction industry across generations and developmental stages. Anumba et al., (2007) posited that too often, the construction industry is known for its products (e.g. buildings, roads, bridges, dams and monuments) and not seen as an industry that provides services to its clients and customers. This is despite the very high levels of 'service-input' needed in the formation of construction products.

2.2 The Nigeria Construction Industry

The Nigerian construction industry (NCI) had been described as a '*sleeping giant*' in terms of service delivery and capacity to satisfy the needs of its clients (Kolo and Ibrahim, 2010). The NCI contributes an average of 5 percent to the annual gross domestic product and an average of about one - third of the fixed capital investment (Omole, 2000). It accounts for employing approximately8 million people, having a population of approximately 140million. This represents approximately 20% of Nigeria's workforce (National Bureau of Statistics, 2006).

Dantata (2008) stressed that in Nigeria it is safe to say that the dominant client for construction activities is the government through its many ministries and agencies. The private clients include individuals, international bodies, large and medium private companies. The NCI as captured by Dantata (2008) is divided into two major groups; the informal and the formal. The formal sector unlike the informal one is an organised structure of construction activities in which activities are conducted under set rules and regulations including compliance to national laws on employment and procurement. Dantata further stressed that lack of skilled manpower, finance and incompetent professionals as contributing factors hindering the performance of the industry. The NCI has become increasingly more sophisticated and challenging. Many projects are getting larger and more technical requiring high quality professional services of more specialised people who are driven by knowledge to add value and improve the fortunes of the industry in Nigeria

2.3 Organisations

Organisations have a structure that is composed of different levels and specialities. Their structures reveal a clear-cut division of labour. Authority and responsibility in a business firm is organised as a hierarchy, or a pyramid structure, of rising authority and responsibility. The upper levels of the hierarchy consist of managerial, professional, and technical employees, whereas the lower levels consist of operational personnel (Laudon and Laudon, 2007). They further highlighted that senior management makes long-range strategic decisions about products and services as well as ensures financial performance of the firm. Middle management carries out the programmes and plans of senior management and operational management is responsible for monitoring the daily activities of the business.

Knowledge workers, such as engineers, scientists, or architects, design products or services and create new knowledge for the firm, whereas data workers such as secretaries or clerks, assist with paperwork at all levels of the firm. The key elements of an organisation are its people, structure, business processes, politics, and culture. Much of the training and experience of construction professionals is based on a balance between codified (explicit) knowledge and tacit knowledge. Case study interviews with structural design firms show that about 80% of knowledge used during concept design is tacit compared to about 20% of explicit knowledge, whilst the reverse is true at the detailed design stage – 20% tacit and 80% explicit (Al-Ghassani, 2003). Organisational change can be initiated deliberately by managers, it can evolve slowly within a department, it can be imposed by specific changes in policy or procedures or it can arise through external pressures. Change can affect all aspects of the operation and functioning of the organisation.

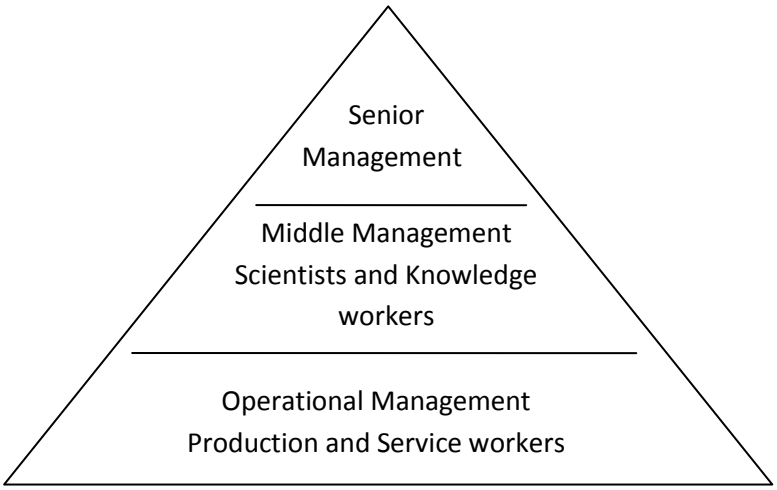


Figure 2.1. Shows the various levels in a firm.

Source: Laudon and Laudon (2007) Management Information Systems. Managing the digital firm.

2.4 Leadership and Innovation

Mullins (2007) cited a 2005 report by the Advanced Institute of Management Research in co-operation with the Chartered Management Institute draws attention to the impact of leadership on innovation. The report refers to the dual role of leaders, first as motivators, inspiring people to transcend the ordinary, and second as architects, designing an organisational environment that enables employees to be innovative. The primary challenges for organisational leaders in promoting innovation are to:

(i) recognise and develop appropriate leadership for the different stages of the innovation process; and

(ii) Create organisational contexts that support complete innovation processes of different degrees of novelty.

One of the most important organisational problems is that attitudes are incited against change. For this reason, one feels the necessity for modern leadership. Another aspect of

this leadership is having supportive thought from the high movements of organizational structure such as knowledge management. Since the implementation of knowledge management is an underlying project in order to improve organization system, the multilateral support of the managers of different levels of organization especially higher underlying and cultural characteristics within organization. Fullan (2001) refers to the importance of relationship building as a basic component of the change process and effective leadership: 'Leaders must be consummate relationship builders with diverse people and groups – especially with people different from themselves. Effective leaders constantly foster purposeful interaction and problem solving and are wary of easy consensus.

Different types of leadership may also be most appropriate at different stages in the development of a business organization. Leadership can also vary between public and private sectors and depend upon the size of the organization. According to the DTI (2004) a primary challenge for organizational leaders in promoting innovation is: recognize and develop appropriate leadership for the different stages of the innovation process. How leaders are selected, supported, evaluated, motivated and developed is likely to differ depending upon the stage of the innovation process they are responsible for. For instance transformational leadership skills may be more useful in early – stage innovation activity, such as R & D and product development but transactional leadership skills are also essential to the smooth functioning of commercialization.

2.4.1 The 'leadership for innovation' conceptual framework

The report cited by Mullins (2007) distinguishes between leaders who primarily motivate through transformational actions – a 'motivational' perspective – and those take a more transactional approach and emphasise the co-ordination of organisational

tasks – a 'structuralist' perspective. In order to address the question of how leadership affects innovation within organisations, the report proposes a conceptual framework that reflects the complex interaction among leadership, the organisational context and innovation.

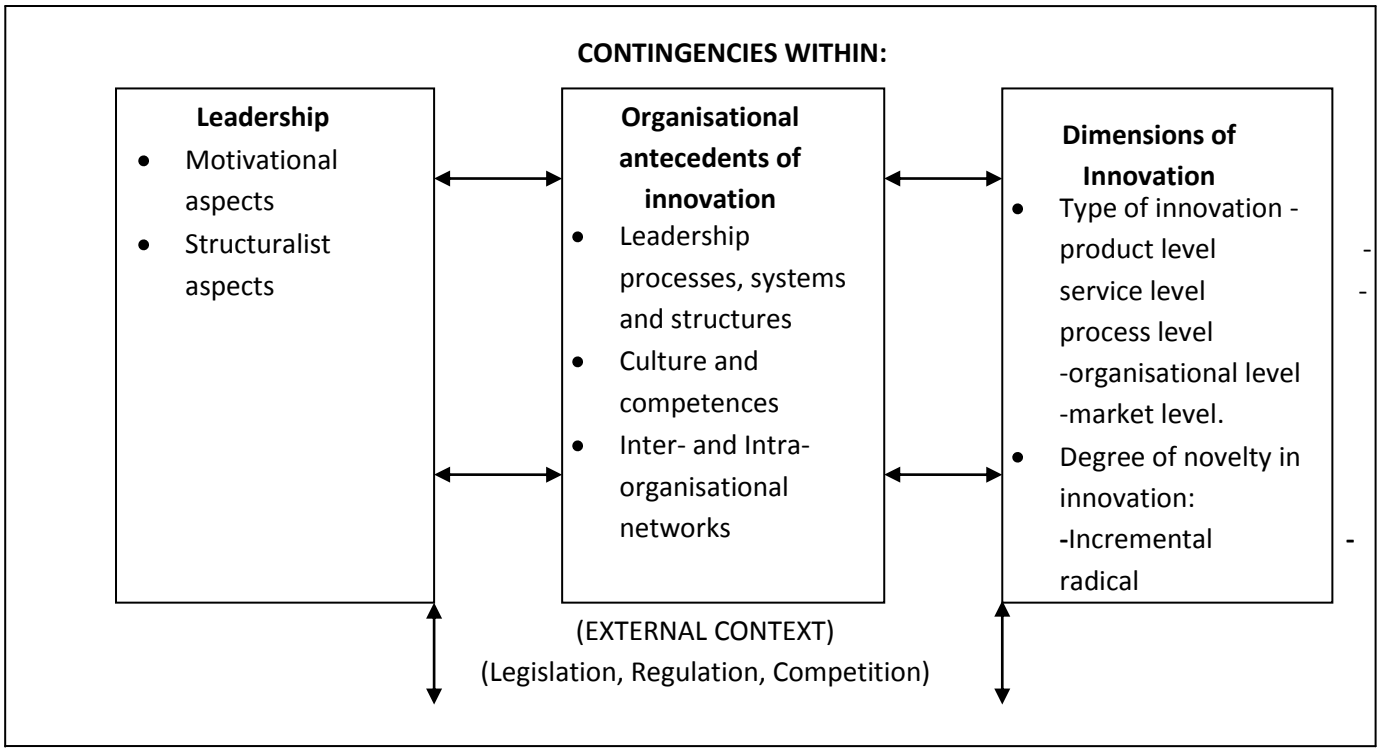


Figure 2.2. The 'Leadership for innovation' conceptual framework

Source: Mullins (2007) Management and Organisational Behaviour.

2.5 Transformational Leadership Theory

At the core of transformational leadership is the concept of transformation, or change of the organization. According to Bass (1985) transformational leadership best reflects this change. Burns (1978) defined transformational leadership as a process in which "leaders and followers raise one another to higher levels of morality and motivation". A chief element of transformation is the ability to cultivate the needs of the follower in a follower centered manner. Transformational leadership is founded on empathy,

understanding, insight, and consideration; not manipulation, power wielding, or coercion. Tichy and Devanna (1986) opined that, "Transformational leadership is about change, innovation, and entrepreneurship". The most important role of the transformational leader, however, is to paint a vision of a desired future state and communicate it in a way that causes followers to believe and have faith in the vision of organizational transformation to make the pain of change worth the effort. Transformational leaders encourage their followers to be more innovative and creative.

Few researchers address the relationship between information management and leadership, and even fewer address the relationship between transformational leadership and knowledge management. According to Klenke (1994), information technology and the actions of leaders create new organizational forms. Leadership is at the center of the interaction between task demands, people, technology, and organization structure. The relationship between innovation and leadership is difficult to articulate given the variety of functional leadership behaviors and the range of information technologies. Technology and leadership have reciprocal effects on each other; a change in one necessitates a change in the other. Brown (1994) opined that transformational leadership is needed in an evolving technological society. Today society was moving from controlled change to accelerated change nearly beyond control. Both attitude and behavior must be the target of transformational leaders. Transformational leaders must meet market demands faster and better than before, given the increasingly interdependent economy.

Researchers have addressed the relationship between innovation and transformational leadership. Howell and Higgins (1990a, 1990b, and 1990c) contended that champions of innovation were significantly more transformational than non-champions. Champions operate in three ways: (i) implement rational methods that promote sound decision

making based on organizational rules and procedures, (ii) engage in a participative process, enlisting others help to gain approval and implementation of the innovation, (iii) work outside the formal channels of bureaucratic rules (Howell & Higgins, 1990a, 1990b, 1990c). Howell and Higgins (1990c) conclude that champions are found in all organisations and without champions "organisations may have lots of ideas but few tangible innovations".

Robbins and Judge (2009) conclude that transformational leaders pay attention to the concerns and developmental needs of individual followers; they change followers' awareness of issues by helping them to look at old problems in new ways; and they are able to excite, arouse, and inspire followers to put out extra effort to achieve group goals. They further posited that transformational leaders are able to motivate followers to perform above expectations and transcend their own self-interest for the sake of the organization. Vroom and Jago (1988) in a study of R&D firms found, for example, that teams led by project leaders who scored high on transformational leadership produced better-quality products as judged 1 year later and were more profitable 5 years later. In a different study Robbins and Judge (2009) cited House (1971) on the review of 87 studies testing transformational leadership found that it was related to the motivation and satisfaction of followers and to the higher performance and perceived effectiveness of leaders.

Theoretically, when individuals communicate and interact as members of a team, they can play a boundary-spanning role by assimilating diverse knowledge. However, the KM process is often hampered by lack of interpersonal trust and lack of explicit knowledge-sharing routines (Burt 2001, 2003). With respect to this, transformational leadership has been identified as an effective approach to facilitate KM processes because such leadership draws on the assumption that certain leader behaviours can

arouse followers to a higher level of thinking, enhance commitment to a well-articulated vision and inspire followers to develop new ways of solving problems (Bass 1985, 1998; Bass and Avolio 1994).

Transformational leaders act as role models for employees, motivate them, and stimulate their intelligence. Research studies carried out in firms to link leadership, particularly, transformational leadership, knowledge management, and human capital benefits are few. A few studies explored the role of transformational leadership styles on individual employees, performance and organisational performance through knowledge acquisition, knowledge creation, knowledge sharing, and knowledge exploitation (Politis, 2001).

2.5.1 Components of transformational leadership

Bass (1985) proposed a theory of transformational leadership that argues that the leader transforms and motivates followers by: (i) generating greater awareness of the importance of the purpose of the organisation and task outcome; (ii) inducing them to transcend their own self-interests for the sake of the organisation or team; and (iii) activating their higher-level needs.

Transformational leadership is comprised of four basic components: (i) idealized influence – the charisma of the leader, and the respect and admiration of the followers; (ii) inspirational motivation – the behavior of the leader which provides meaning and challenge to the work of the followers; (iii) intellectual stimulation – leaders who solicit new and novel approaches for the performance of work and creative problem solutions from followers; and (iv) individualized consideration – leaders who listen and give special concern to the growth and development needs of the followers (Bass and Avolio, 1994).

Yukl (2006) provides a set of guidelines for transformational leadership: (i) articulate a clear and appealing vision of what the organisation could accomplish or become to help people understand the purpose, objectives and priorities of the organisation, and to help guide the actions and decisions of members. (ii) explain how the vision can be attained and establish a clear link between the vision and credible conventional yet straightforward strategy for attaining it. (iii) act confident and optimistic about likely success, demonstrate self-confidence and conviction, and emphasise positive aspects of the vision rather than the obstacles and dangers. (iv) express confidence in followers and their ability to carry out the strategy for accomplishing the vision, especially when the task is difficult or dangerous, or when members lack confidence in themselves. (v) use dramatic, symbolic actions to emphasise key values and demonstrate leadership behavior through dramatic, highly visible actions including risking personal loss, self-sacrifice or acting unconventionally. (vi) lead by example by recognizing actions speak louder than words, through exemplary behaviour in day-to-day interactions with subordinates and by demonstrating consistency in daily behaviour.

We therefore argue that the characteristics of transformational leadership facilitate effective knowledge-creation processes in several ways. First, leaders who display transformational leadership are able to stimulate social identification of followers through articulating a compelling vision about the importance and value in teams (Bass 1985, 1998). Research indicates that mitigating the effects of social categorisation can increase individuals' commitment to a shared vision of knowledge creation because the process of social categorisation is associated with the emergence of distrust, conflict and information- withholding among team members (Dougherty 1992; Nonaka and Konno 1998). Hence, we argue that by articulating a compelling vision of knowledge creation, leaders can enhance followers' perceptions of intra-team similarity to a collective

perception. This has been found to lessen the effects of subjective biases and personal stereotypes of individual differences (Sethi, Smith & Park 2001). Followers would tend to appreciate the benefits of individual differentiation more and perceive the unique knowledge, skills, experiences and abilities of other members as important because they contribute to a larger collective process of knowledge creation in organisations.

Second, when leaders express confidence in followers' capabilities and recognize their effort in knowledge creation, the followers' self-esteem and self-worth will be increased. This is because creating new ideas to enrich existing knowledge is very difficult and followers often experience failure and negative emotions such as disappointment, frustration and even anger during the processes (Sosik 1997; Jung 2001). Some followers may even doubt their capabilities and potential to further the knowledge creation process. In this regard, we argue that leaders who provide emotional uplift to their followers will develop new knowledge for organisational effectiveness.

Third, intellectual stimulation of transformational leaders has implications for follower knowledge creation. The theoretical underpinning is that leaders displaying intellectual stimulation always encourage their followers to think creatively in order to explore new ways of doing things (Bass 1985; Avolio 1999). Specifically, the leaders provide constructive feedback to their followers and also act as role models to demonstrate how to think creatively about complex problems and existing practice. This helps followers overcome convergent pressure that has been identified as acting as 'idea boundaries' by which new knowledge creation is likely to be constrained, pressing individuals to develop ideas that are perceived as legitimate in their team (Teece 1998). We also argue that intellectual stimulation of transformational leadership can enhance followers' novel interpretations of existing information and strengthen the process of debating differing ideas within a team. Shin and Zhou (2003) and Jung (2001) found that transformational

leadership has a positive relationship with creative behaviour and idea generation. Evidence further supports the role of transformational leadership in facilitating divergent thinking in teams (Jung and Avolio, 2000), which has also been linked to knowledge creation (DeDreu and West, 2001).

The relationship between transformational leadership and knowledge creation is based on an assumption that knowledge is created through an interactive process of drawing out, analysing and integrating knowledge (Bhatt 2000; Sosik 1997). Research, however, indicates that there are significant barriers to the interactive process supporting knowledge sharing and integration (Szulanski 1996), many of which are related to poor interpersonal relations and lack of trust. In this respect, transformational leadership has been effective for the development of strong interpersonal relationships (Wang et al., 2005). For example, Howell and Hall-Merenda (1999) found that transformational leadership has a strong positive relationship with high-quality exchange relationship between supervisors and subordinates because mutual respect, trust and concern are facilitated by the leadership characteristics.

2.6 Transactional Leadership Theory

Transactional leaders focus mainly on the physical and the security needs of subordinates. The relationship that evolves between the leader and the follower is based on bargaining exchange or reward systems (Bass, 1985; Bass and Avolio, 1993). Transactional leaders guide or motivate their followers in the direction of established goals by clarifying role and task requirements (Robbins and Judge, 2009). Transactional leadership is at the heart of the management process aimed at keeping the organization running smoothly and efficiently. Its emphasis is primarily on control through rule compliance and maintaining stability within the organization rather than promoting

change. By clarifying expectations and satisfying followers' external needs, followers build their confidence and morale and are more productive (Daft, 2005).

2.6.1 Characteristics of Transactional Leadership

Bass (1990) identified three characteristics of transactional leadership as:

i. Contingent Reward: contracts exchange of rewards for effort, promises rewards for good performance, recognizes accomplishments.
ii. Management by Exception (active): watches and searches for deviations from rules and standards, takes correct action.
iii. Management by Exception (passive): intervenes only if standards are not met.

2.7 Laissez-Faire Leadership Theory

In this type of leadership style the leader abdicates his responsibilities and avoids making decisions.

2.8 Full Range of Leadership Model

Figure 2.3 shows the full range of leadership model. Laissez – faire is the most passive and therefore the least effective of the leader behaviours. Leaders using this style are rarely viewed as effective. Management by exception – regardless of whether it is active or passive – is slightly better than laissez – faire, but it's still considered ineffective leadership. Leaders who practice management by exception leadership tend to be available only when there is a problem, which is often too late. Contingent reward leadership can be an effective style of leadership. However, leaders will not get their employees to go above and beyond the call of duty when practicing this style of leadership. Only with the four remaining leadership styles – which are all aspects of transformational leadership – are leaders able to motivate followers to perform above expectation and transcend their own self – interest for the sake of the organization. Individualised consideration, intellectual stimulation, inspirational motivation, and

idealised influence all result in extra effort from workers, higher productivity, higher morale and satisfaction, higher organisational effectiveness, lower turnover, lower absenteeism, and greater organisational adaptability (Robbins and Judge, 2009). Based on this model, leaders are generally most effective when they regularly use each of the four transformational behaviours.

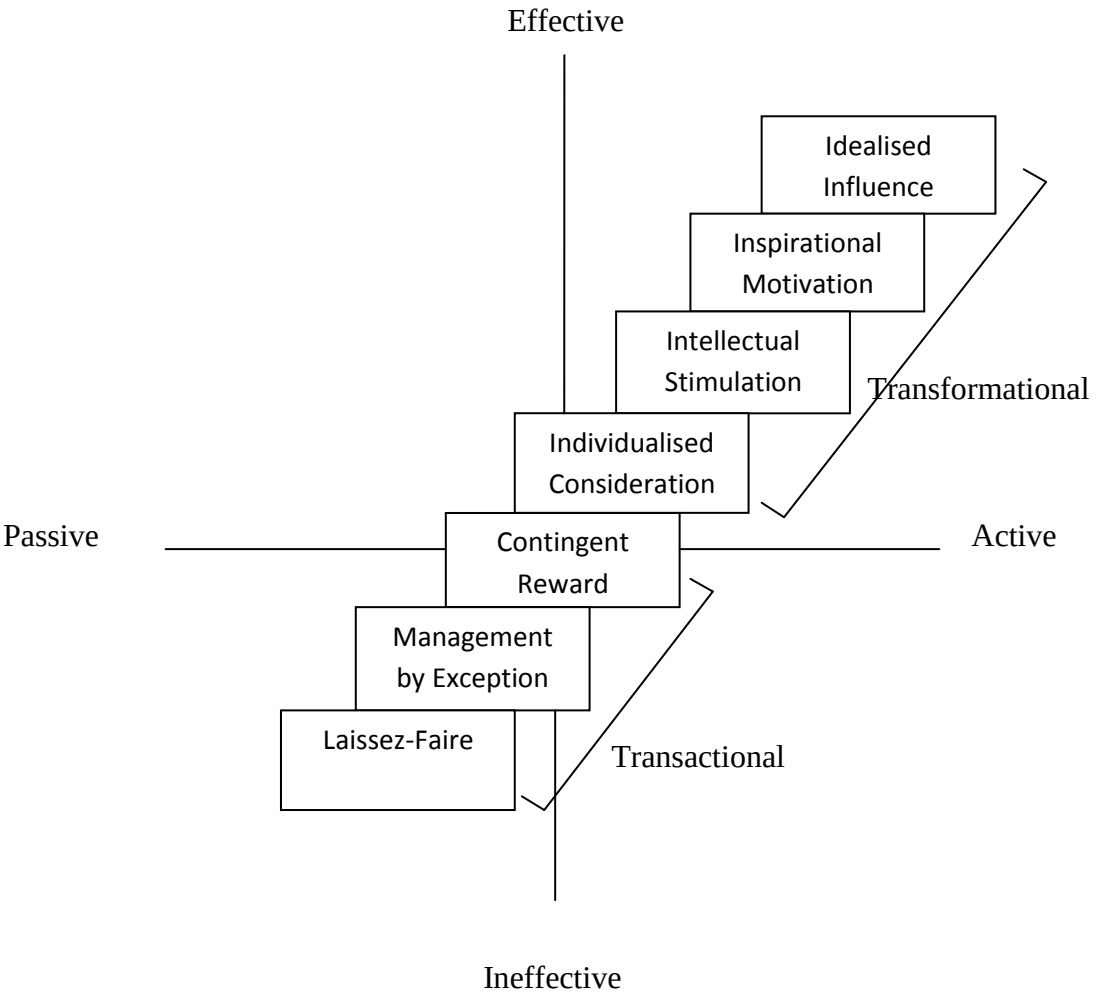


Figure 2.3 Full Range of Leadership Model

Source: Robbins and Judge (2009) Organisational Behaviour

Table 2.1 Showing Leadership Model Factors as Measured by MLQ 5X

Transformational Factors	Transactional Factors	Laissez – Faire Factors
Idealised influence attributes – Influence to change worker attributes **Idealised influence behaviour** – Influence to change worker behavior **Inspirational motivation** – inspiring others to perform at a higher level **Intellectual Stimulation** – Challenging the intellect to get new ideas and transformations **Individual consideration** – Acknowledging each individual for their contributions	**Contingent reward** – Rewards are only based on outcomes and the focus is on close management guidance of activities **Management – by-exception (active)** – Focusing on intervention only after a mistake has been made. Active implies close focus on every activity **Management – by – exception (passive)** - Intervention is only made when workers make a mistake on tasks they have defined	**Laissez – Faire leadership** – Abdicates his responsibilities avoids making decision

2.9 Fundamentals of Knowledge Management

Knowledge is about knowing what to do with information (actionable information or information with context) and can be categorised into internal and external knowledge, individual and group knowledge, explicit and tacit knowledge. Of central importance is the type of knowledge that organisations are forced to manage. If all knowledge were codified and formal, or explicit, then the function of knowledge management would be little more than compliance and management. Nevertheless, the reality is that much of the information that organisations try to manage is held within the personal and collective experiences of the workforce; it is tacit knowledge. Bollinger and Smith (2001) explained that tacit knowledge is unarticulated knowledge that is in a person's head that is often difficult to describe and transfer. It includes lessons learned, know-how, judgment, rules of thumb, and intuition. It is key characteristic of team-based

learning organisations. Further clarifying this point, Lang (2001) stated that, "knowledge is both produced and held collectively rather than individually in tightly knit groups or 'communities of practice'... organizational knowledge is social in character". Tacit knowledge is an important resource of organizations given that 42% of corporate knowledge is held within employee's minds (Clarke & Rollo, 2001).

Knowledge management is 'any process or practice of creating, acquiring, capturing, sharing and using knowledge, wherever it resides to enhance learning and performance in organization' (Scarbrough et al., 1999). Explicit knowledge is generally easy to access and manage, but tacit knowledge often defies capture given its highly personal and subjective, but critical, nature. Knowledge management is primarily about making tacit knowledge more accessible since it accounts for a majority of an organisation collective knowledge (Clarke & Rollo, 2001). Lang (2001) explicated the goal of knowledge management, "knowledge management systems must connect people to enable them to think together and to take time to articulate and share information and insights they know are useful to their company". Stonehouse and Pemberton (1999) also suggested, "it is the role of knowledge management to ensure that individual learning becomes organisational learning". Birkinshaw (2001) referred to this process as 'recycling' old knowledge. Knowledge management is a complex process without end, but effective knowledge management can be a goal for any organization.

Egbu and Robinson (2005) posited that in a knowledge economy, it could be argued that different kinds of knowledge are evident; these include:

- 'Know-what' – accumulation of facts that can be broken down into pieces
- 'Know-why'– scientific knowledge that underlies technological development, product and process advancements.

- ‘Know-how’ – skills or capability to do something and the reason for the formation of industrial networks to enable firms to share and combine elements of know-how.
- ‘Know-who’ – involves information about who knows what and who knows how to do what.

The researchers went further to identify other characteristics of knowledge economy to include an intensified knowledge codification, accelerated transmission of information and emergence of flexible organisation. Such organisation are characterized by multi – task responsibilities, team work, job rotation to achieve high production quality and some customisation, together with the speed and low unit cost of mass production. Construction project knowledge is created through the actions of individuals, project teams, and construction organisations and the interaction of these different types of knowledge (explicit and tacit) from design to handing over of the completed project.

The process of knowledge management is based on the ability of all members of the organization to add value to the basic business processes through the creation, communication, codification, and coordination of both explicit and tacit knowledge stores (Nonaka and Takeuchi, 1995). Specifically, Nonaka and Takeuchi (1995) theorized that the flow of knowledge transitions from socialization, to externalization, to combination, and finally to internalization- basically from the raw experience, to understanding, then to categorization, and finally to the creation of personal mental models that transcend the experience.

Various authors discuss the specific processes associated with knowledge management. Galagan (1997) proposed the following sample list of knowledge management processes:

(i) Generating new knowledge,

(ii) Accessing knowledge from external sources,

(iii) Representing knowledge in documents, databases, software, etc.,

(iv) Embedding knowledge in products, processes, or services,

(v) Transferring existing knowledge around an organization,

(vi) Using accessible knowledge in decision making,

(vii) Facilitating knowledge growth through culture and incentives,

(viii) Measuring the value of knowledge assets and the impact of knowledge management.

According to Siemieniuch and Sinclair (1999), through knowledge management organisation intangible assets can be better exploited to create value, with both internal and external knowledge being leveraged to the benefit of the organisation. In projects, knowledge management can improve communications within teams, and provide more informed knowledge by sharing best practice documents, lessons learned, project management and system engineering methodologies, examples of review packages, and the rationale for strategic decisions.

Seng, Zannes, and Pace (2002) developed five distinct steps in the process of managing knowledge:

1. Capturing knowledge; record steps involved in solving a problem.
2. Storing knowledge; capture information must be stored in a database, warehouse, application, or some other production system.
3. Processing knowledge; sorting, filtering, organizing, analyzing, comparing, correlating, and mining the knowledge.
4. Sharing knowledge; distributing knowledge through information systems or through personal interaction, synchronously or asynchronously.
5. Using knowledge; solving problems to advance the objectives of the organization.

KM provides several benefits such as facilitating staff training, problem-solving and decision making. It also enables the intellectual capital of an organization (its skills, knowledge and processes) to be used effectively, creatively and consistently to improve business performance and customer satisfaction (TFPL Ltd, 1999). KM is therefore critical to an organization's survival in competitive markets and it is becoming a strategic necessity for organizations willing to lead the market and even to those just wishing to keep their places in the market. The number of organizations that are implementing or planning to implement KM initiatives is increasing exponentially (Tiwana, 2000) because of the following reasons:

i. Companies are becoming knowledge intensive rather than capital intensive.
ii. Unstable markets necessitate organized actions with regards to replacing old products and introducing new ones.
iii. KM allows companies to lead change.
iv. Only the knowledgeable organizations survive.
v. Cross-industry amalgamation is already breeding complexity.
vi. Knowledge supports decision-making.
vii. Shared knowledge multiplies.
viii. Tacit knowledge can be lost easily.
ix. Competitors exist worldwide.

Barth (2003) detailed several distinctive personal knowledge management tools. The framework that Barth details provides perhaps the most effective and developed comprehensive categorization of personal knowledge management tools. They included:

1. Accessing; search strategies, research, inquiry.
2. Evaluating; judgment, confirmation of information, qualification.
3. Organizing; filtering, discarding, filing and archiving.

4. Analyzing; critical thinking, sense-making, testing hypotheses.

5. Conveying, explaining, presenting, written and spoken conveyance.

6. Collaborating; messaging, sharing documents, meetings and conversations.

7. Securing; self-discipline, backup, inoculation, threat awareness.

It is important for the whole organisation to understand what KM is and why it is important. The organisation should take a recognised and accepted generic definition, apply it to their specific context, and tailor it to accommodate specific business objectives. This will require support, agreement and communication from the top. To ensure an alignment with its business objectives and strategies, the organisation should consider the type of work they carry out, their culture, dynamics, politics and practices, as well as the added value that is required from the KM initiative (Bishop et al., 2008).

An important feature that distinguishes knowledge – intensive sectors from manufacturing firms is the type of 'product' they supply and, following this, the role they play in regional and national innovation systems. Whereas manufactured products and processes contain a high degree of codified knowledge, knowledge – intensive sectors' are characterized by a high degree of tacit (intangible) knowledge. Specialized expert knowledge and problem – solving know – how are the real products of knowledge – intensive industries (Egbu and Robinson, 2005).

Professional knowledge (i.e. knowledge produced by consultants while interacting with their client's settings) is deeply embedded in a mutual socialisation process, where consultants and their clients design together their final output. This is often seen in the kinds of services provided by professional/consultancy firms of architects, quantity surveyors and engineers. For consultancy or professional firms, their main capital is intellectual assets, and most of their processes are geared towards the exploration, accumulation and exploitation of individual and expertise (Egbu and Robinson, 2005).

2.10 Knowledge Management: Issues of Strategy, Structure, Culture, Technology

For a project-based industry such as construction, project learning is complementary to an overall KM strategy. Most construction organisations have some elements of KM already in place. However, it is important to look at the effectiveness of existing KM efforts and map out workable KM strategies for the future. An organization concentrating on dealing with standardised solutions to client problems will tend to adapt a strategy focusing on explicit knowledge. If the organisation is seeking to continuously innovate it must address the far challenging area of tacit KM before accordingly adapting its KM strategy.

Those with the responsibilities for implementing KM strategies such as Knowledge managers are increasingly being challenged to make a business case for KM given the competing needs for organisational resources. Anumba et al., (2007) posited that two key factors – 'content' and 'context' determine the success of KM strategies. The absence of a clear KM strategy coupled with an undirected KM initiatives will probably only make things worse.

Organisations need to have flexible structures to encourage better internal communications and a more change-friendly scenario where ideas and knowledge are shared freely. The organizational structure should respond effectively to external pressures and in contrast structures determined by core competencies can adapt to chaotic external pressures more easily. Organisational structure should play a part in the encouragement of knowledge sharing. A good internal organizational structure is one that is flexible but supportive of the ideas promoted by employees.

Gamble and Blackwell (2001) cited Goffee and Jones (1996) describe culture as 'a habitual way of behaving and acting, often motivated from deeply engrained presumptions about the right way to act.' What this really means is that a corporate

culture refers to a set of behaviours that are valued not because they are enforced from outside or even from within but simply because that is the way that influential members of the organisation prefer them to happen. It would be a mistake to underestimate the importance of cultural factors in the adoption of KM. In order to establish a knowledge-based organisation there needs to be a supportive organisational culture. Egbu et al., (2005) stressed that management should create an appropriate culture for effective KM to thrive in organisations. The authors further stated that if the construction industry is to build core competencies, maintain capability and benefit from innovation, it has to change from blame culture to a sharing culture. It is therefore important to observe that organisation culture must be flexible enough to facilitate any innovation process.

Gamble and Blackwell (2001) identified that in KM that technology support can be divided into two broad classes: i. transfer and exchange systems; which refers to databases, document depositories, pointers to expertise, document exchanges and video infrastructure. ii. data analysis and performance support; which includes data to knowledge conversion systems, data mining decision support and real time intelligent data analysis.

The important role of ICT in KM (especially for explicit knowledge) capture and retrieval and their implications for innovations in the construction industry have been well documented (Egbu, 2000).

2.11 Leadership in Knowledge Organizations

According to Mahoney (2000) leadership must exist at all levels in an organization, regardless of the size, for it to consider itself a learning organization. Leadership is an inherent part of organizational culture, but also extends into areas of strategy and structure. Leadership is an organizational responsibility. The value of institutional

leadership must be its ability to create the structures, strategies and systems that facilitate innovation and organisational learning (Anumba et al., 2007).

Baines (1997) suggested that leaders, first and foremost, were responsible for learning both personally as well as organisationally. Scharmer (2001) charged leaders with a nearly impossible task, "Leaders…. face a new challenge, "Leaders must be able to see the emerging opportunities before they become manifest in the marketplace". Leaders play a crucial role in building and maintaining an organisational culture of learning. They specifically infer that leaders must attach a high value to knowledge, encourage questioning and experimentation through empowerment, build trust, and facilitate experiential learning of tacit knowledge (Stonehouse and Pemberton, 1999). Bollinger and Smith (2001) suggested that leaders need to focus on:

1. Establishing a culture that respects knowledge, reinforces its sharing, retains its people, and builds loyalty to the organisation,
2. Ensuring that anyone in a supervisory position receive training, empowerment, and support to promote the desired culture,
3. Establishing a knowledge infrastructure and support system that enhances and facilitates sharing and application of knowledge.

Ramberg (2000) noted that leadership is key to the success of any plan that attempts to change the way an organization does business. Without the support, participation and leadership of top, mid-level and operational level management and the development of an appropriate infrastructure, any program is destined to become just another fad or the latest flavor-of-the-month program.

McGregor (1987) identified four major variables that affect leadership relationship as:

i. the characteristics of the leader;
ii. the attitude, needs and other personal characteristics of the followers;

iii. the nature of the organisation, such as its purpose, its structure, the tasks to be performed; and

iv. the social, economic and political environment.

McGregor concludes that leadership is not a property of the individual, but a complex relationship among these variables. DTI (2004) found that the three most frequently identified leadership attributes are vision (79%), trust (77%), and respect (73%). However, less than four in ten followers see these behaviours demonstrated within their own company.

Davenport and Prusak (2000) also gave very specific recommendations to would be leaders regarding their role in knowledge management. They suggest that leaders:

1. Advocate the importance of learning and knowledge in an organisation,
2. Design, implement, and oversee an organisation learning infrastructure,
3. Manage relationships with external knowledge providers,
4. Provide ideas to improve the process of knowledge creation in the organisation,
5. Design and implement a knowledge codification approach.
6. Measure and manage the value of knowledge,
7. Manage the organisation professional knowledge managers,
8. Lead the development of learning and knowledge strategies, focusing the organisation resources.

Lang (2001) provided further substance when arguing that human relationships within an organization are crucial for knowledge creation, sharing, and utilization. Lang expressed, “The real task of knowledge management is to connect people to people to enable them to share what expertise and knowledge they have at the moment”. Hitt (1995) also identified that leaders needed to empower all members of the learning

organisation by developing a shared vision, providing resources, delegating authority, celebrating success, and most important, by being a learning architect.

Some limited empirical findings on the role of leadership in the knowledge organisation have been published, but this type of investigation has not been the norm. On the basis of several case studies of knowledge organisations, Waldersee (1997) concluded that leaders should target five specific areas:

i. Maximize message reception,

ii. Create and embed an intellectual transformation of the workforce,

iii. Motivate to learn,

iv. Raise self-confidence,

v. Enable navigation through a changing environment.

Politis (2001) looked at the relationship between self-management, transformational, transactional leadership, and a number of knowledge management attributes. Politis established that self-management, transformational, and transactional leadership styles are related to dimensions of knowledge acquisition. Consequently, Politis concluded: it is the participative and self-management leadership style that encourages and facilitates these attributes (behavioural skills and traits of knowledge workers) that are essential for knowledge management (acquisition) and knowledge sharing. It is the participative and self-management leadership style that has clear and conscious knowledge strategy if the enterprise is to take advantage of the knowledge available in impacting efficiency, effectiveness, productivity, and competitive position.

Politis further commented about the need for leaders to act within an empowered environment. The empirical findings, though limited, seem to lend some support to the theoretical assumptions made by many authors speaking of the need for participative collaborative leadership in the face of the transition to the knowledge society.

2.12 The Importance of Senior Management Commitment

Leadership commitment is required for all areas of KM but obviously in the more uncertain area of relationships between suppliers there must be at least one strong champion of knowledge creation in a leadership position (Gamble and Blackwell, 2001). KM requires senior managers to think differently about organisational work and KM activities require managers to change how they invest their effort and time – costs. For senior management to add value to its organisation they first need to develop a clear vision of strategic potential of KMS. Senior management is an organisational responsibility. They are uniquely positioned to develop and exploit strategic potential ideas and to set conditions for the flow of knowledge around the business to ensure that managerial decisions are taken effectively to address continual change requirements (Bollinger and Smith, 2001). Marshall and Sapsed (2000) conclude that; knowledge resides in the heads of senior engineers who have gained it through experience, many of these engineers see 'knowledge as power' and do not readily share, many experience engineers are approaching retirement and there is limited knowledge transfer to more junior staff.

Furthermore, Bailey and Clarke (2000) posited that for senior management to add value need to leverage external knowledge that others are not party to, make informed judgments about trends in the uncertain future in order that they can create clarity of direction. They then need to communicate well and widely what is fundamentally and critically important to organisational success. What this highlights for senior mangers is the need to step up from managing to leading - using their organisational visibility to convey what is strategically important and the focus of their activities to create a knowledge valuing, creating, sharing and exploiting culture.

Kridan and Goulding (2006) emphasise that to gain and sustain commitment to valuing KMS, it is believed that senior managers should have the motivations to invest in organisational resource and personal reputation to create favourable conditions for KMS by changing culture in the business. They further highlight that senior management need to have sufficient grasp of the external business and industry environment to spot the trends and sufficient grasp of the capability and contribution potential within the organisation. And of course this clear vision can only be built and exploited if senior managers devote time to communicating it well in terms that are relevant to those round the organisation who are best placed to implement it.

2.13 Importance of Knowledge Worker in Construction

It is argued (Robinson et al, 2001: Egbu and Robinson, 2005) that the construction industry, although known for its highly tangible products such as buildings and other structures, is increasingly now recognised as a provider of services, placing more emphasis on knowledge. Anumba et al., (2007) share the view that improved performance will result from the pooling of an organisation's knowledge as workers will be both more effective (adopting the most appropriate solutions) and more efficient (using less time and other resources). People and knowledge are a corporation's strategic resources. They constitute in a sense the corporate memory. Knowledge is the only unlimited resource, the one key asset that can grow the more it is used. The typical knowledge worker draws from a vast well of previous projects, design experience and best practices. This can be experience acquired by the individual or by his/her mentors or professional community (Fruchter and Demian, 2005).

Egbu (2005) conveyed the position that management should not only be interested in knowledge development but proactively support it. As part of knowledge development, it is important that knowledge workers (organization and project staff and team

members) are included in a dynamic KM process, which demands the support of motivation, creativity and the ability to improve a comprehensive vision of the relationship between the organisation, project and its environment. Consequently the construction industry has already entered into a knowledge economy where it is seen as one of the knowledge based value creating sectors of the economy. However, what people do with their knowledge is the real driver for competitive advantage in the knowledge economy (Quintas, 2005).

The increased awareness of the importance of employees' knowledge coincided also with popularisation of the idea of the 'knowledge worker'. This is based on the notion that certain types of work are more knowledge intensive than others, and it is this knowledge intensive work that is growing within the economy (Quintas, 2005). The significance of the construction worker is elaborated by the fact that industry relies on skill and on the capacity to bring different skills together effectively thus the concept of the knowledge worker has long been important to construction organisations.

In recent years, with the growth of the service sector, this emphasis placed on the construction knowledge worker has gradually increased. Furthermore, construction employs an extremely diverse range of people from a wide array of occupational cultures and backgrounds, including people in unskilled, craft, managerial and professional positions, which makes it difficult to manage knowledge workers effectively to ensure organizational success. Considerable of this individual knowledge is unknown to others and unmapped and unrecorded. As Sheehan et al (2005) asserts in construction;

i. 80% of the useful knowledge is tacit and cannot be written down;

ii. the construction industry is characterised by a wealth of experiential knowledge, yet employees retire or leave the organisation, potentially taking tacit knowledge and a potential source of competitive advantage with them.

As Rezgui (2001) cited, there are few key reasons that limit current approaches of KM in the construction industry. Among the key factors for these limitations are;

1. much construction knowledge, by necessity, resides in the minds of the individual working within the domain;
2. the intent behind the decisions is often not recorded or documented;
3. the individuals who have knowledge about the project are likely to leave for another project at the end of the construction stage; hence their input is not captured.

All these three limitations indicate the direct correlation with the human factor in the construction industry and stress the importance of the concept of knowledge worker which has long been central to construction industry performance. Further, both Sheehan et al., (2005) and Rezgui (2001) stress the point that much knowledge possessed by construction knowledge workers are considered to be tacit in nature. According to Anumba et al. (2007) knowledge workers (people) must be empowered and resourced to execute organisational activities.

CHAPTER THREE

RESEARCH METHOD

3.1 Research Approach

A quantitative research approach was adopted for the study. The quantitative research approach is synonymous with the traditional, experimental, or positivist method (Leedy and Ormrod, 2005). The objective of a quantitative research is to develop and employ mathematical models, theories and/or hypotheses pertaining to phenomena. A descriptive research involves either identifying the characteristics of an observed phenomenon or exploring possible correlations among two or more phenomena. Quantitative research operates under the assumption that reality is and can be easily divided into discrete, measurable variables.

Quantitative research was identified to be three types namely experiments, quasi-experiments and surveys (SJI, 1999). The survey technique is the most widely used method in social sciences and the most appropriate for this study (a self-administered questionnaire survey was adopted for the study). Quantitative data is any data that is in numerical form such as statistics, percentages, etc.

3.2 The Self-Administered Questionnaire Survey

According to McQueen and Knussen (2002) a questionnaire survey is one of the most cost effective ways to involve a large number of people in the process in order to achieve better results. The study questionnaire was a self-administrated measuring instrument comprising closed-ended questions. The accuracy and success of questionnaire surveys largely depend on the careful design of its contents, structure and the response format. In view of the foregoing statement considerable effort was therefore taken in designing the questionnaire for this study.

The self administered questionnaire survey for this study was used to answer the second and third objectives of the study i.e.; to establish the leadership behaviours (transformational, transactional and laissez-faire) exhibited by consulting firms in the NCI, and to establish whether the consulting firms in the NCI exhibits KM. The reasons for adopting the structured questionnaire are that it facilitates data analysis and the estimations of validity and reliability indices for the instrument. It is easier and demands less time to complete.

The 5 point Likert rating was adopted to elicit information from the respondents. The respondents were required to indicate the extent to which they agreed with a given statement, on a five point scale. The ratings used for both leadership behaviours and KM are as follows: 5-Strongly agree, 4-Agree 3-Not sure, 2-Disagree and 1-Strongly disagree.

3.3 Data Collection Instrument

The frequency with which an individual engages in leadership behaviours was determined by the Multifactor Leadership Questionnaire (MLQ), Form 5X. This self-report test developed by Bass and Avolio (2004) has been used in academic studies on leadership. The MLQ has developed a track record for providing insights into leadership behaviours and this is the basis from which the researcher decided to adopt the test and use it to obtain the leadership information required for this study. The MLQ form 5X analyses leadership behaviours in three primary areas: Transformational, Transactional and Laissez-faire behaviours. The MLQ 5X breaks these three primary categories into nine factors, five of which are considered transformational leadership behaviours, three transactional, and one laissez-faire.

The data collection instrument was structured in two parts. The first part focused on leadership behaviours which were measured by using a modified version of Bass and

Avolio (2004) multifactor leadership questionnaire (MLQ) Form 5X. The second part of the instrument utilised in this study was the Knowledge Management Inventory. The inventory focused exclusively on the behavioural aspects of KM and the contents of the questions was derived from Gamble and Blackwell (2001).

The questionnaire was administered on senior management staff of consulting firms in the NCI. Few questions regarding personal information of respondents were included in the structured questionnaire.

3.4 Sampling

The sample used in this survey was drawn primarily from Architects Registration Council of Nigeria (ARCON), Quantity Surveyors Registration Board of Nigeria (QSRBN) and Council of Registered Engineers of Nigeria (COREN) database of registered consulting firms in Abuja (FCT) and Kaduna State. The various profession councils provided only the list of financially up to date registered consulting firms.

3.4.1 Study Population

Consulting firms based in two major cities of Nigeria (Abuja (FCT) and Kaduna State) were chosen as the target population for this study. The choice of Kaduna and Abuja for this study was premised on the fact that both cities have a fair concentration of construction consulting firms. From literature studies have shown that construction consulting firms are knowledge oriented firms which adequately suited the population requirements of the study. The construction consulting firms used in the study were Quantity Surveying, Architectural, Structural, and Mechanical and Electrical (M&E) Engineering firms.

3.4.2 Sampling Frame and Sample Size

To ensure that adequate representation of information was collected, the sample frame used in this study was drawn primarily from the registers of the State chapters' of the

various professional institutions that made up the target population of the study areas. The professional institutions from which the sample frame were obtained includes: Architects Registration Council of Nigeria (ARCON), Quantity Surveyors Registration Board of Nigeria (QSRBN) and Council of Registered Engineers of Nigeria (COREN). A total of 498 construction consulting firms were obtained, which included: Quantity Surveying, Architectural, Structural, and Mechanical and Electrical (M&E) Engineering practice firms. In order to determine a suitable size for the sample the formula from Yamane (1986) was applied for calculating sample size i.e.

$$n = \frac{N}{1 + N(e)^2} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where;

n = required sample size

N = the population size

e = level of precision (0.050),

The sample size for this study was calculated to be 222 using the above stated formula. To this end a systematic sampling was used to select the consulting firms that were issued the structured questionnaires through hand delivery to their offices. The systematic sampling is a statistical method involving the selection of elements from ordered sampling frame. In systematic sampling procedure each element in the population has a known and equal probability of selection. The main advantage of using systematic sampling is its simplicity. It allows the researcher to add a degree of system or process into the random selection of subjects. Another advantage of the systematic sampling is the assurance that the population will be evenly sampled. The procedure for selecting a systematic sampling is very easy and can be done manually. This process is much like an arithmetic progression.

A total of 240 questionnaires were issued out, instead of 222. This was to ensure equitable distribution of the questionnaires among the consulting firms involved in the study. However, after series of follow-ups and reminders, only 110 questionnaires were completed and returned. The number of questionnaires completed and returned (110) was far lower than the sample size computed for the study (222) but in the views of Moser and Kalton (1971) the result of a survey could be considered as biased and of little significance if the return rate was lower than 30-40%. Based on the foregoing assertion the numbers of questionnaires completed and returned were therefore considered adequate for analysis, as 110 represents 45.9% of the total questionnaires administered (240).

3.5 Data Analysis

The data collected for this study was analyzed using descriptive statistics to answer the study objectives. Descriptive analysis provides simple summaries about the sample and about the observations that have been made.

In analyzing the data, the mean scores of the variables were calculated using the formula below;

$$X = \frac{\sum fs}{N}$$

Where:

X = the mean score

f = the frequency of responses to each rating (1-5)

s = the score given to each variables by the respondents from 1-5, and

N = the total of number of responses concerning that variable

For a decision to be taken on each of the variable in the questionnaires 3.00 was taken as the average mean.

Mean score = (1+2+3+4+5) ÷ 5 = 3

In examining the relationship between leadership behaviours and KM two types of statistical tests were employed; namely the t-test for independent sample and the Karl-Pearson product moment correlation coefficient.

t-test for independent sample:

Hypotheses:-

Transformational leadership:

H_0: There is no relationship between transformational leadership and knowledge management in organizations (consulting firms).

H_1: There is relationship between transformational leadership and knowledge management in organizations (consulting firms).

Transactional leadership:

H_0: There is no relationship between transactional leadership and knowledge management in organizations (consulting firms).

H_1: There is relationship between transactional leadership and knowledge management in organizations (consulting firms).

Laissez-Faire leadership:

H_0: There is no relationship between laissez-faire leadership and knowledge management in organizations (consulting firms).

H_1: There is relationship between laissez-faire leadership and knowledge management in organizations (consulting firms).

Decision: Reject H_0 if α=0.05 is greater than sig(2-tailed) value, but do not reject if otherwise.

It is important to emphasize that in the t-test analysis mean imputation was used where values were missing, then a simulation for the missing observations was done to have a balance in order to avoid loss of precision and for the results/outcome to be unbiased.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Data Presentation and Analysis

In this study descriptive statistics are used to describe the main features of a collection of data in quantitative terms. This involved the use of frequencies, percentages and means for presenting description finding of the survey. These techniques were employed for analysing data related to the characteristics of the respondents, their organisations and closed-ended questions.

Table 4.1 Response Rate of Consulting Firms

Professional Practice Firms	Number of Questionnaires distributed	Number of Responses	Percentage of Response	Overall Response Percentage
Architectural Firms	48	30	62.5	12.5
Quantity Surveying Firms	48	46	95.8	19.2
Structural Engineering Firms	48	16	33.3	6.7
Electrical Engineering Firms	48	11	22.9	4.6
Mechanical Engineering Firms	48	7	14.6	2.9
Total	240	110		45.9

Table 4.1, shows that one hundred and ten (110) questionnaires were returned out of two hundred and forty (240) sent out, which represents a total response rate of 45.9%. Quantity Surveying practice firms had the highest response rate of (46), followed by Architectural firms with a response rate of 30. Structural Engineers had 16 responses, while Electrical Engineers and Mechanical Engineers had the least response rates of 11 and 7 respectively.

Table 4.2 Qualification of Respondents

Qualification of respondent in firms	Frequency	Percentage
MSc	39	35
BSc	58	53
PGD	5	5
HND	8	7
Total	110	100

Table 4.2 provides information relating to the qualifications of the survey respondents in the consulting firms. As shown in this Table, 53% of the respondents had earned BSc, 35% had MSc, while only 7% and 5% of the respondents had HND and PGD respectively. The percentage rate of the survey respondents with MSc and BSc were far more than those with HND and PGD. It can therefore be inferred that the survey respondents in the consulting firms were educated. It is therefore evident that reliable information was provided by the survey respondents since all of them were educated in their respective professions.

4.2 Establishing the Leadership Behaviours exhibited by Consulting Firms in the NCI

The leadership behaviours were determined by the Multifactor Leadership Questionnaire (MLQ), Form 5X. This self-report test developed by Bass and Avolio (2004) has been used in academic studies on leadership. The MLQ form 5X analyses leadership behaviours in three primary areas: Transformational, Transactional and Laissez-faire behaviours. The MLQ 5X breaks these three primary categories into nine factors, five of which are considered transformational leadership behaviours, three transactional, and one laissez-faire.

Table 4.3: Extent of Leadership Behaviours in Consulting Firms in the NCI

	Architectural Firms		Quantity Surveying Firms		Structural Engineering Firms		Electrical Engineering Firms		Mechanical Engineering Firms		Overall	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Transformational												
Inspire workers and others to perform at a higher level	4.67	1	4.70	1	4.63	1	4.28	2	4.00	1	4.46	1
Acknowledging each individual/worker for their contributions	4.55	2	4.40	2	4.38	2	4.40	1	3.98	3	4.34	2
Challenge the intellect of workers to get new ideas and transformations	4.09	3	4.20	3	3.98	3	3.90	3	4.00	1	4.03	3
Influence to change workers attributes	3.88	4	3.98	4	3.90	4	3.72	5	3.78	4	3.85	4
Influence to change workers behavior	3.82	5	3.97	5	3.80	5	3.84	4	3.67	5	3.82	5
Overall Mean	**4.20**		**4.25**		**4.14**		**4.03**		**3.89**		**4.10**	
Transactional												
Rewards are only based on outcomes and the focus is on close management guidance of activities	3.00	6	2.98	6	2.84	7	2.82	6	2.91	6	2.91	6
Watches and searches for deviations from rules and standards before taking corrective measures	2.80	7	2.92	7	2.87	6	2.72	7	2.77	7	2.82	7
Focusing on intervention only after a mistake has been made	2.67	8	2.87	8	2.63	8	2.39	8	2.59	8	2.63	8
Overall Mean	**2.82**		**2.92**		**2.78**		**2.64**		**2.76**		**2.79**	
Laissez-faire												
Abdicates his responsibilities and avoids making decision.	2.27	9	2.22	9	2.56	9	2.27	9	2.29	9	2.32	9
Overall Mean	**2.27**		**2.22**		**2.56**		**2.27**		**2.29**		**2.32**	

As shown in Table 4.3, for the Architectural firms, the mean scores for all transformational leadership behaviours were all above 3 out of 5, averaging to the high

overall mean score of 4.2. This clearly indicates that the Architectural firms agree that transformational leadership behaviours are exhibited by the leadership in their practice firms;“inspire workers and others to perform at a higher level” as well as “acknowledging each individual/worker for their contributions”, being the most exhibited transformational leadership behaviours. However, as shown by the mean scores also, while Architectural firms agree with the exhibition of transformational leadership behaviours in their consulting firms, they clearly disagree with the exhibition of transactional leadership behaviours and laissez-faire leadership behaviours in their practice firms, as all the transactional leadership behaviours as well as the laissez-faire leadership behaviours were all below 3 out of 5, (except contingent reward which was just on the average) averaging to the very low overall mean score of 2.82 and 2.27 respectively.

Similarly, as shown in Table 4.3, for the Quantity Surveying firms and Structural Engineering firms the mean scores for all transformational leadership behaviours were all above 3 out of 5, averaging to the high overall mean score of 4.25 and 4.14 respectively. This also clearly indicates that both the Quantity Surveying firms and Structural Engineering firms agree that transformational leadership behaviours are exhibited by the leadership in their consulting firms. Just like the Architectural firms, “inspire workers and others to perform at a higher level” as well as “acknowledging each individual/worker for their contributions”, are the most exhibited transformational leadership behaviours in both Quantity Surveying and Structural Engineering consulting firms. As shown in Table 4.3 also, Quantity Surveying firms and Structural Engineering firms also both disagree with the exhibition of transactional leadership behaviours and laissez-faire leadership behaviours in their consulting firms, as all the transactional

leadership behaviours as well as the laissez-faire leadership behaviours were all below 3 out of 5, averaging to the very low overall mean scores of 2.92 and 2.72 respectively.

Furthermore, as indicated in Table 4.3 Electrical Engineering firms and Mechanical Engineering firms, just like the Architectural, Quantity Surveying and Structural Engineering firms, also agree that transformational leadership behaviours are exhibited by the leadership in their consulting firms, but disagree with the exhibition of transactional leadership behaviours and laissez-faire leadership behaviours in their consulting firms. "acknowledging each individual/worker for their contributions" as well as "inspire workers and others to perform at a higher level", were the most exhibited transformational leadership behaviours in the Electrical Engineering firms, while "inspire workers and others to perform at a higher level" as well as "challenge the intellect of workers to get new ideas and transformations", were the most exhibited transformational leadership behaviours in the Mechanical Engineering consulting firms.

4.3 Establishing whether the consulting firms in the NCI exhibits KM

Five key major aspects of KM were identified as applicable to the industry namely: Awareness and Commitment, Strategy, Information Technology (IT), Organisation and Culture. Tables 4.4 to 4.8 shows the extent to which each variable within these categories are present in consulting firms of the NCI.

Table 4.4: Extent to which KM; Awareness and Commitment exist in Consulting Firms in the NCI

	Architectural Firms		Quantity Surveying Firms		Structural Engineering Firms		Electrical Engineering Firms		Mechanical Engineering Firms	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Awareness & Commitment										
Support, knowledge sharing & learning	4.22	2	4.20	2	4.16	2	4.06	2	4.08	2
Demonstrate commitment to KM with resources, action, guidelines and activities	4.60	1	4.65	1	4.62	1	4.62	1	4.45	1
Business strategy and knowledge is widely recognized as the basis of our competitive position	3.68	5	3.66	5	3.59	5	3.64	5	3.60	5
Intellectual assets are recognized and some measure of value attached	4.09	4	4.15	4	4.10	3	4.05	3	4.07	4
Staff understands the concept of KM	4.10	3	4.20	2	4.00	4	4.02	4	4.08	2
Overall Mean	**4.14**		**4.17**		**4.09**		**4.08**		**4.06**	

As shown in Table 4.4, the mean scores for all aspects of the KM; 'awareness and commitment" were all greater than 3 out of 5, for all the consulting firms considered. In addition, the overall mean score for the awareness and commitment behaviour was greater than 4 out of 5 for all the consulting firms. This clearly indicates that all the consulting firms agree that awareness and commitment behaviours exist in their practice firms. As revealed by the mean scores also, "commitment to KM with resources, action, guidelines and activities" was the most existent 'awareness and commitment' behaviour in the consulting firms, while "business strategy and knowledge widely recognized as the basis of our competitive position", was the least existent awareness and commitment behaviour in the consulting firms.

Table 4.5: Extent to which KM - Strategy exist in Consulting Firms in the NCI.

	Architectural Firms		Quantity Surveying Firms		Structural Engineering Firms		Electrical Engineering Firms		Mechanical Engineering Firms	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Strategy										
There is a vision for how KM should integrate into the business	3.75	2	3.82	2	3.68	1	3.54	2	3.61	1
It is clear how KM initiatives support the business plan	3.78	1	3.91	1	3.45	2	3.68	1	3.58	2
KM principles are well established	2.92	3	2.85	4	2.90	4	2.80	4	2.78	4
There are defined responsibilities and a budget set for KM	2.88	4	3.01	3	2.97	3	2.85	3	2.89	3
There is a programme of initiatives within the business plan to improve KM	2.72	5	2.68	5	2.70	5	2.62	5	2.60	5
Overall Mean	**3.21**		**3.25**		**3.14**		**3.10**		**3.09**	

Table 4.5 shows the extent to which each component of the KM; 'Strategy' exist in consulting firms in the NCI. As shown in this Table, for all the consulting firms, not all components of the strategy behaviour had a mean score greater than 3 out of 5. However, the overall mean score for the strategy behaviour was greater than 3 out of 5 for all the consulting firms. It is therefore obvious that all the consulting firms agreed that the strategy behaviour existed in their firms, but were not sure of the existence of some of its components in their respective consulting firms. As shown by the mean scores, the strategy behaviours which seemed to be existent in the practice firms were; "there is a vision for how KM should integrate into the business", as well as "it is clear how KM initiatives support the business plan". The mean scores also reveal that the strategy behaviour which is most inexistent in the firms was; "there is a programme of initiatives within the business plan to improve KM".

Table 4.6: Extent to which KM - Information Technology exist in Consulting Firms in the NCI.

	Architectural Firms		Quantity Surveying Firms		Structural Engineering Firms		Electrical Engineering Firms		Mechanical Engineering Firms	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Information Technology										
IT makes the search for information much easier	4.82	1	4.70	3	4.72	1	4.64	4	4.68	2
Technology is a key enabler in ensuring the right information is available to the right people at the right time	4.80	2	4.75	2	4.70	2	4.82	1	4.72	1
IT allows effective communication across boundaries and even time zones	4.75	3	4.80	1	4.66	3	4.82	1	4.64	3
Staff uses the IT in place effectively as a normal working practice	4.30	4	4.65	4	4.60	4	4.68	3	4.59	4
Hardware and software are updated routinely without significant debate	4.10	5	4.30	5	4.08	5	4.25	5	4.18	5
Overall Mean	**4.55**		**4.64**		**4.55**		**4.64**		**4.56**	

As shown in Table 4.6, the mean scores for all aspects of the KM; 'information technology' was all greater than 3 out of 5, for all the consulting firms considered. In addition, the overall mean score for the information technology behaviour was greater than 4 out of 5 for all the firms. This clearly indicates that all the consulting firms agree that information technology behaviours exist in their firms. As revealed by the mean scores also, "technology is a key enabler in ensuring the right information is available to the right people at the right time" was the most existent 'information technology' behaviour in the firms, while "hardware and software are updated routinely without significant debate", was the least existent information technology behaviour in the firms.

Table 4.7: Extent to which KM behaviour- Organisation exist in Consulting Firms in the NCI.

	Architectural Firms		Quantity Surveying Firms		Structural Engineering Firms		Electrical Engineering Firms		Mechanical Engineering Firms	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Organisation										
Information are available to users in formats they can use and understand	3.85	3	3.90	3	3.92	3	3.93	3	3.78	3
Formal networks exist to facilitate the dissemination of knowledge	4.02	2	4.18	1	4.00	2	4.09	2	4.05	2
Informal networks across the organization are encouraged	3.42	4	3.60	4	3.50	4	3.45	4	3.48	4
Staff are rotated to spread best practice ideas in order to assist with the dissemination of best practice	4.08	1	4.15	2	4.10	1	4.12	1	4.10	1
A flexible, well – structured, up-to-date knowledge map exists to point staff in the direction of the knowledge they seek	2.82	5	2.80	5	2.84	5	2.79	5	2.85	5
Overall Mean	**3.64**		**3.73**		**3.67**		**3.68**		**3.65**	

Table 4.7 shows the extent to which each component of the KM; 'Organisation' exist in consulting firms in the NCI. As shown in this Table, for all the consulting firms, not all components of the organisation behaviour had a mean score greater than 3 out of 5. However, the overall mean score for the organisation behaviour was greater than 3 out of 5 for all the consulting firms. It is therefore obvious that all the consulting firms agreed that the organisation behaviour existed in their firms, but were not sure of the existence of some of its components in their respective consulting firms. The mean scores also reveal that the organisation behaviour which are most in existent in the consulting firms were; "staff are rotated to spread best practice ideas in order to assist with the dissemination of best practice", as well as "formal networks exist to facilitate the dissemination of knowledge".

Table 4.8: Extent to which KM - Culture exist in Consulting Firms in the NCI.

	Architectural Firms		Quantity Surveying Firms		Structural Engineering Firms		Electrical Engineering Firms		Mechanical Engineering Firms	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Culture										
We constantly seek best practice and try to re-use existing projects and knowledge whenever we can	4.83	1	4.85	1	4.80	1	4.82	1	4.65	1
Recording and sharing of knowledge is routine and second nature	4.50	2	4.52	3	4.35	2	4.45	2	4.18	2
Knowledge sharing is seen as a strength, mentoring and coaching are encouraged	3.90	5	3.98	5	3.92	5	3.89	5	3.94	5
Everyone is willing to give advice or help on request to anyone else in the firm	4.15	4	4.20	4	4.09	4	4.18	4	4.10	4
Regular reviews or debriefings are used to see what we have learnt from projects	4.48	3	4.54	2	4.20	3	4.45	2	4.15	3
Overall Mean	**4.37**		**4.42**		**4.27**		**4.36**		**4.20**	

As shown in Table 4.8, the mean scores for all aspects of the KM; 'culture' was all greater than 3 out of 5, for all the consulting firms considered. In addition, the overall mean score for the culture behaviour was greater than 4 out of 5 for all the consulting firms. This clearly indicates that all the consulting firms agree that culture behaviours exist in their firms. As revealed by the mean scores also, "we constantly seek best practice and try to re-use existing projects and knowledge whenever we can" was the most existent 'culture' behaviour in the consulting firms, while "knowledge sharing is seen as a strength, mentoring and coaching are encouraged", was the least existent culture behaviour in the consulting firms.

4.4 Examining the relationship between Leadership behaviours and Knowledge Management (KM)

In examining the relationship between leadership behaviours and KM, two types of statistical test was employed; namely the t-test for independent sample and the Karl-Pearson product moment correlation coefficient.

Table 4.9: Group Statistics for Transformational Leadership and Knowledge Management.

Group Statistics

Group	N	Mean	Std. Deviation	Std. Error Mean
Transformational Leadership/KM				
Transformational Leadership	5	4.100	0.28853	0.12903
Knowledge Management	5	3.964	0.56234	0.25149

Table 4.10: Showing t-test for Transformational Leadership and Knowledge Management

Independent Sample Test

	Levene's test for equality of variance		t-test for equality of Means		t-test for equality of means			t-test for equality of means	
	F	Sig.	T	df	Sig.(2-tailed)	Mean Diff.	Std. Error Diff.	95% confidence interval of the difference	
								Lower	Upper
Transformational Leadership/KM									
Equal Variance assumed	3.463	.100	-5.146	8	.001	-1.4060	.27324	-2.03609	-.77591
Equal Variance not assumed			-5.146	5.398	.003	-1.4060	.27324	-2.09308	-.71892

Table 4.9 shows the group statistics for transformational leadership behaviours and KM. While Table 4.10 shows the independent sample test for transformational leadership and KM. From table 4.10 the results show that α=0.05 is greater than sig.(2-tailed) value of 0.001 this implies reject H_0 and therefore can conclude that there is a relationship between transformational leadership and KM in consulting firms in the NCI.

Table 4.11: Group Statistics for Transactional Leadership Behaviours and KM.

Group Statistics

Group	N	Mean	Std. Deviation	Std. Error Mean
Transactional Leadership/KM				
Transactional Leadership	5	2.790	0.23853	0.10684
Knowledge Management	5	3.964	0.56234	0.25149

Table 4.12: Showing t-test for Transactional Leadership and Knowledge Management

Independent Sample Test

	Levene's test for equality of variance		t-test for equality of Means		t-test for equality of means			t-test for equality of means	
	F	Sig.	T	df	Sig.(2-tailed)	Mean Diff.	Std. Error Diff.	95% confidence interval of the difference	
								Lower	Upper
Transactional Leadership/KM									
Equal Variance assumed	3.843	.086	-4.668	8	.002	-1.2700	.27209	-1.89744	-.64256
Equal Variance not assumed			-4.668	5.328	.005	-1.2700	.27209	-1.95675	-.58325

Table 4.11 shows the group statistics for transactional leadership behaviours and KM. While Table 4.12 shows the independent sample test for transactional leadership and KM. From table 4.12 the results show that α=0.05 is greater than sig.(2-tailed) value of 0.002 this implies reject H_0 and therefore can conclude that there is a relationship between transactional leadership and KM in construction consulting firms in the NCI.

Table 4.13: Group Statistics for Laissez-Faire Leadership and Knowledge Management.

Group Statistics

Group	N	Mean	Std. Deviation	Std. Error Mean
Laissez-Faire Leadership/KM				
Laissez-Faire Leadership	5	2.320	0.2388	0.10386
Knowledge Management	5	3.9640	0.56234	0.25149

Table 4.14: Showing t-test for Laissez-Faire Leadership and Knowledge Management

Independent Sample Test

	Levene's test for equality of variance		t-test for equality of Means		t-test for equality of means			t-test for equality of means	
	F	Sig.	T	df	Sig.(2-tailed)	Mean Diff.	Std. Error Diff.	95% confidence interval of the difference	
								Lower	Upper
Laissez-Faire Leadership/KM									
Equal Variance assumed	2.297	.168	.481	8	.643	.13600	.28266	-.51581	.78781
Equal Variance not assumed			.481	5.970	.648	.13600	.28266	-.55650	.82850

Table 4.13 shows the group statistics for laissez-faire leadership behaviours and KM. While Table 4.14 shows the independent sample test for laissez-faire leadership and KM. From table 4.14 the results show that α=0.05 is less than sig.(2-tailed) value of 0.643 this implies H_0 is not rejected and therefore it can be inferred that there is no relationship between laissez-faire leadership and KM in construction consulting firms in the NCI.

In order to further ascertain the veracity of the independent samples test between the leadership behaviours and KM; Pearson product-moment correlation coefficient was employed. The primary reason was to confirm the reliability of the results of the independent samples test carried out as above.

Table 4.15: Showing the Pearson product-moment correlation coefficient between Transformational leadership and KM

Correlations

		Transformational Leadership	Knowledge Management
Transformational Leadership	Pearson Correlation	1	.699
	Sig. (2-tailed)		.189
	N	5	5
Knowledge Management	Pearson Correlation	.699	1
	Sig. (2-tailed)	.189	
	N	5	5

Table 4.16: Shows the Pearson product-moment correlation coefficient between Transactional leadership and KM

Correlations

		Transactional Leadership	Knowledge Management
Transactional Leadership	Pearson Correlation	1	-.532
	Sig. (2-tailed)		-.357
	N	5	5
Knowledge Management	Pearson Correlation	-.532	1
	Sig. (2-tailed)	-.357	
	N	5	5

Table 4.17: Shows the Pearson product-moment correlation coefficient between Laissez-Faire Leadership and KM

Correlations

		Laissez-Faire Leadership	Knowledge Management
Laissez-Faire Leadership	Pearson Correlation	1	-.532
	Sig. (2-tailed)		.575
	N	5	5
Knowledge Management	Pearson Correlation	-.341	1
	Sig. (2-tailed)	.575	
	N	5	5

The result in table 4.15 shows a strong positive interplay between transformational leadership and knowledge management in construction consulting firms with a value of 0.699. This implies that about 70% relationship was established between transformational leadership and KM in consulting firms in the NCI. The result in table 4.16 shows that the relationship between transactional leadership and KM is a negative one of -0.532. This implies that if transactional leadership increases by 1unit knowledge management decreases by 1unit and vice-versa. It means that there is no relationship. However, the result of the independent sample test shows there is a relationship between transactional leadership and KM in consulting firms. Similarly, table 4.17 the result shows that the relationship between laissez-faire leadership and KM is a negative one of -0.341. This result justifies the independent sample t-test which shows no relationship between them.

4.5 Discussion of Results

As shown in the results, consulting firms in the NCI (Architectural firms, Quantity Surveying firms, Structural Engineering firms, Electrical Engineering firms and Mechanical Engineering firms) all agree that transformational leadership behaviours are exhibited by the leadership in their respective consulting firms, but disagree with the exhibition of transactional and laissez-faire leadership behaviours by the leadership of their consulting firms. In addition, the results also showed that the three leadership behaviours (transformational, transactional and laissez-faire) are exhibited by the practice firms in varying mean rates of agreement/disagreement as evident from the analysis. Similarly, the results also show that KM (Awareness and Commitment, Strategy, Information Technology (IT), Organisation and Culture) are present/exists in construction consulting firms in the NCI.

The result of both the independent sample t-test and the Pearson product-moment correlation coefficient showed there is a relationship between transformational leadership and KM in consulting firms in the NCI. In the case of the relationship between transactional leadership and KM, the independent sample t-test showed there was interplay between them. However, the Pearson product-moment correlation coefficient showed that there is no relationship between them. This can be inferred to mean that the relationship between transactional leadership and KM is a weak one. The result further revealed that both the independent sample t-test and the Pearson product-moment correlation coefficient showed there is no relationship between laissez-faire leadership and KM in consulting firms in the NCI.

The exhibition of transformational leadership behaviours by the leadership of construction consulting firms in the NCI and the corresponding existence/presence of KM in the firms, clearly conforms to Bryan (2003) assertion that there is a clear relationship between transformational leadership and knowledge management in organizations. It also conforms to Kasimu et al., (2012) suggestion that leadership is a key factor for any KM initiative to succeed in the NCI. In addition, it shows that KM are present/existent in the consulting firms, as a result of the transformational leadership behaviour being exhibited by the leadership of the consulting firms in the NCI.

Politis (2001) found that transformational leadership styles are related to dimensions of knowledge acquisition, while Goud and Scott (2003) established the argument that transformational leadership was related to innovation (knowledge Management). In their findings, transformational leaders were significantly more innovative than transactional and laissez – faire leaders. The outcome of this study clearly indicates that transformational leadership is related to knowledge management in organisations

(consulting firms) in the NCI. Therefore this study also agrees with the positions of both Politis (2001) and Goud and Scott (2003) as outlined above.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary of Findings

The following are the findings from the study:

i. Consulting firms in the NCI (Architectural firms, Quantity Surveying firms, Structural Engineering firms, Electrical Engineering firms and Mechanical Engineering firms) exhibit transformational leadership behaviours, but do not exhibit transactional and laissez-faire leadership behaviours.

ii. Consulting firms in the NCI from the outcome of the findings showed that inspire workers and others to perform at a higher level as well as acknowledging each individual/worker for their contributions are the transformational leadership behaviour factors most exhibited by the consulting firms.

iii. KM was found to be present in all the construction consulting firms in the NCI, due to the transformational leadership behaviours being exhibited by the leadership of the consulting firms.

iv. Information Technology (IT) is the KM inventory most existent in the consulting firms in the NCI, while strategy is the least existent KM inventory in the consulting firms in the NCI.

5.2 Conclusion

The results of the study have shown that transformational leadership behaviours are present in the construction consulting firms in the NCI, which consequently, is responsible for the presence of KM in the construction consulting firms. It can therefore

be concluded that the construction consulting firms in the NCI possess the right leadership behaviours that facilitates the adoption of KM.

5.3 Recommendations

The following recommendations are made based on the findings of this study;

i. The transformational leadership behaviours exhibited by the consulting firms has a strong relationship with higher productivity, higher morale and satisfaction, higher organisational effectiveness, lower absenteeism, and greater organisational adaptability by employees of the consulting firms. The foregoing outcomes are all embedded in the transformational leadership components of idealised influence attributes, idealised influence behaviour, inspirational motivation, intellectual stimulation and individual consideration. It is therefore pertinent that the consulting firms harness this strong positive relationship between senior management and employees as a result of the characteristics of transformational leadership behaviours present in their firms to reaping increased productivity for their firms.

ii. Transformational leadership is associated with effective leadership and it is receptive to innovation. Innovation is a change management initiative which includes knowledge management. The consulting firms on the basis of this fact can formally adopt KM practice to improve their competitiveness in the market place and the quality of their service delivery in the NCI.

iii. The consulting firms must attempt to improve their KM strategies since project learning is complimentary to overall KM strategy.

5.4 Notes For Further Studies

i. The study used MLQ form 5X created by Bass and Avolio (2004) to test leadership behaviours and used knowledge management inventory questions created by Gamble and Blackwell (2001) to test KM; further studies can be carried out using other measures from literature to test both leadership behaviours and KM.

ii. This study focused on construction consulting firms of the NCI further studies can be carried out to include constructors, contracting firms and client organisations.

iii. This same study can be extended to cover other parts of Nigeria so as to justify the veracity of the current finding.

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APPENDIX 1: SURVEY QUESTIONNAIRE

Department of Quantity Surveying

Faculty of Environmental Design

Ahmadu Bello University, Zaria.

May 13, 2013

ASSESSMENT OF ORGANISATIONAL LEADERSHIP FOR KNOWLEDGE MANAGEMENT (KM) PRACTICE IN THE NIGERIA CONSTRUCTION INDUSTRY (NCI).

The NCI is characterized as slow to innovation and lacks the capacity to deliver particularly when juxtaposed with other developing countries with similar developmental challenges at about the 1970s; despite the industry's state in Nigeria researches have continued to suggest ways of improving service delivery in the industry. One of such ways is the massive campaigning from research and industry for the NCI to adopt concepts of KM to improve the situation. The challenge for adopting a change management initiative is leadership. This research uses the components of transformational leadership to assess NCI if it has the right leadership attributes to adapt the concepts of KM.

Please you are graciously requested to assist the researcher to conduct the research in order to assess organizational leadership for KM practice in the NCI by filling-in or ticking the questionnaire as appropriately as possible.

Thank you.

Yours Sincerely,

Kene Christopher Nzekwe

QUESTIONNAIRE

The questionnaire has three sections namely: (i) personal information of the respondent; (ii) part 1 – leadership behaviors; and (iii) part 2 – KM behaviors.

Personal information of the respondent.

Please fill-in as appropriate

Company name:_____

Position held in the Company:_____

Profession of respondent:_____

Highest Qualification:_____

PART 1 – Leadership Behaviour

Below are some characteristics of leadership exhibited in the construction industry towards managing organizations. Please indicate the extent to which these characteristics are exhibited by the leadership in your organization. Please tick as appropriate for each of these characteristics using the following scale: **(1 = Strongly disagree; 2 = Disagree; 3 = Not sure; 4 = Agree; and 5 = Strongly agree).**

		1	2	3	4	5
1	Abdicates his responsibilities and avoids making decision.					
2	Inspire workers and others to perform at a higher level.					
3	Focusing on intervention only after a mistake has been made.					
4	Challenge the intellect of workers to get new ideas and transformations.					
5	Rewards are only based on outcomes and the focus is on close management guidance of activities.					
6	Influence to change workers behavior.					
7	Acknowledging each individual/worker for their contributions.					
8	Watches and searches for deviations from rules and standards before taking corrective measures.					
9	Influence to change workers attributes					

PART 2 – KM Behaviours

Five key major aspects of KM behaviours have been identified as applicable to the construction industry namely: **Awareness and Commitment, Strategy, Information Technology, Organisation and Culture.** Please kindly indicate the extent by which each variable within these categories applies in your organization in terms of agreement. Please also tick the appropriate box using the following scale **(1 = Strongly disagree; 2 = Disagree; 3 = Not sure; 4 = Agree; and 5 = Strongly agree)** as a basis for your rating as it applies in your organization.

		1	2	3	4	5
•	**AWARENESS AND COMMITMENT**					
1	Demonstrate commitment to KM with resources, action, guidelines and activities					
2	Support knowledge sharing, learning and other KM desired behaviours					
3	The staff understand the concept of KM					
4	Intellectual assets are recognized and some measure of value attached.					
5	It is seen as a vital element of business strategy and knowledge is widely recognized as the basis of our competitive position.					
•	**STRATEGY**					
1	There is a vision for how KM should integrate into the business					
2	It is clear how KM initiatives support the business plan					
3	There are defined responsibilities and a budget set for KM					
4	KM principles are well established. There are definitions of key knowledge guidelines					
5	There is a programme of initiatives within the business plan to improve KM					
•	**INFORMATION TECHNOLOGY**					
1	Technology is a key enabler in ensuring the right information is available to the right people at the right time.					
2	IT makes the search for information much easier.					

3	IT allows effective communication across boundaries and even time zones					
4	Staff uses the IT in place effectively as a normal working practice.					
5	Hardware and software are updated routinely without significant debate					
•	**ORGANISATION**					
1	Informal networks across the organization are encouraged					
2	Formal networks exist to facilitate the dissemination of knowledge					
3	Staff are rotated to spread best practice ideas in order to assist with the dissemination of best practice					
4	Information are available to users in formats they can use and understand					
5	A flexible, well-structured, up-to-date knowledge map exists to point staff in the direction of the knowledge they seek					
•	**CULTURE**					
1	We constantly seek best practice and try to re-use existing projects and knowledge whenever we can.					
2	Recording and sharing of knowledge is routine and second nature					
3	Regular reviews or debriefings are used to see what we have learnt from projects					
4	Everyone is willing to give advice or help on request to anyone else in the firm.					
5	Knowledge sharing is seen as a strength, mentoring and coaching are encouraged					

You may wish to kindly use the space below to list any other leadership or KM behaviours that the questionnaire did not capture but features prominently in your organization; that you think will further enrich this study.

_____
_____
_____
_____
_____
_____