

DEVELOPING ORGANIZATIONAL INNOVATION CAPABILITIES THROUGH KNOWLEDGE MANAGEMENT: EVIDENCE FROM REFINING COMPANIES IN NIGERIA

¹Anozie Joseph Aghaegbuna & ²Dr. Ojiabo Ukoha

^{1,2}Department of Management, Faculty of Management Sciences,
University of Port Harcourt, Nigeria.

ABSTRACT

This study investigated the relationship between five dimensions of Knowledge Management namely; knowledge identification, knowledge organization, knowledge storage, knowledge dissemination and knowledge application, with Organizational Innovation of refining companies in Nigeria. A cross-sectional survey approach was used to carry out the study. The study covered the three refining companies in Nigeria located at Port Harcourt, Warri and Kaduna. Purposive Sampling technique was used. Structured questionnaire using the 5-point Likert Scale was used to obtain primary data from respondents while secondary data was sourced using library method. Knowledge management and its dimensions are the predictor variables while Organizational Innovation is the criterion variable. Five null hypotheses were formulated for the study. A total of 157 respondents were used for the study. Data analysis was carried out using IBM SPSS AMOS Version 21 software. Structural Equation Modelling technique was utilized to carry out multivariate analysis and test of hypotheses. The study found out that there is a strong positive relationship between knowledge management and organizational innovation of refining companies in Nigeria. Knowledge organization, knowledge storage and knowledge application are each significantly and positively correlated with organizational innovation, while knowledge identification and knowledge dissemination each does not have significant relationship with organizational innovation. The study recommended that the refining companies should strive to create an enabling work environment and managerial style that stimulates innovation and discourage work environment or managerial style that pose as obstacles to knowledge management and organizational innovation.

Keywords: Knowledge management, organizational innovation, Refining Companies, Structural Equation Modeling.

1.0. INTRODUCTION

1.1 Background to the Study

The rapid advancement in technology and new inventions in the market have made many organizations to strive to maintain competitive advantage. One of the ways organizations can achieve this is through organizational innovation. The importance of organizational innovation can be captured from Dougherty and Hardy (1996) who defined organizational innovation as the mechanism applied by firms to adapt to changes in business environment, competition, technological advancement and market expansion by producing newer products, techniques and system. Herkema (2003) defines innovation as a knowledge process aimed at creating new knowledge geared towards the development of commercial and viable solutions. Innovation therefore involves the adoption of an idea or behaviour that is new to the organization. Thus, innovation requires that an organization will leverage on the knowledge available to it, acquire new knowledge and apply this knowledge to its operations for the production of new product, new service or a new technology. In other words innovation can be said to be dependent on the availability of knowledge. There is therefore need for organizations to undertake proper knowledge management practices that will help it to be more innovative by finding better ways of carrying out its business, create new products or services or improve on its current products and services.

Developing organizational innovation capability of refining companies in Nigeria is very important. There is scarcity of literature in the area of knowledge management and organizational innovation in Nigeria's oil industry especially the refining companies which are major contributors to the industrial growth and economy of Nigeria. Organizational innovation is a concept that is closely linked to knowledge management. Knowledge management can be used as a tool to enhance the innovation capability of refining companies in Nigeria. Practically every innovation has to do with application of knowledge, skill, technology or expertise. Knowledge management involves the process of identification, organization, storage, dissemination and application of knowledge for the purpose of organizational innovation, gain competitive advantage, solve organizational problems and generally to improve organizational performance. There is no consensus among management scholars about the number of dimensions of knowledge management. Some have used between three to eight components of knowledge management process depending on their research interest. In this study, five dimensions of knowledge management will be used, namely; knowledge identification, knowledge organization, knowledge storage, knowledge dissemination and knowledge application. Each of these dimensions will be measured and its relationship with organizational innovation will be evaluated.

1.2 Statement of the Problem

The refineries in Nigeria have been operating below installed capacity for several years and are unable to meet with local demand for petroleum products. In order to bridge the shortfall in supply of refined petroleum products, the Federal government of Nigeria through the Nigeria National Petroleum Company (NNPC) embarked on massive importation of refined

petroleum products. The importation of refined petroleum products takes big toll on the nation's scarce foreign exchange reserve and negatively affects the Nigerian economy. Many scholars and public commentators have blamed several factors as responsible for the perceived poor performance of our refining companies. Some of the factors blamed for the current state of affairs in Nigeria refining companies are: lack of technological innovation and lack of needed expertise (Faga, Uchechukwu & Obiekwe, 2016). Manifestation of this problem of lack of technological innovation and expertise include other factors such as aging plants, lack of maintenance culture, destruction of oil supply pipelines, crude oil theft, non adoption of current technology available in the industry (like modular refineries), lack of adequate infrastructure, insufficient funding, debts owed, political interference, corruption and culture of inefficiency that characterize most public owned organizations in Nigeria.

The political interference in the management and administration of the refineries is a serious factor affecting the performance of the refineries. The three refineries are all owned by the state through Nigeria National Petroleum Company (NNPC). Thus government appoints the management board of the refineries. More often the appointments are based on political considerations. All major projects to be undertaking by the refineries have to get the approval of the Nigerian Federal Executive Council (FEC) before commencement. Most times urgent projects like Turn Around Maintenance (TAM) proposals are unduly delayed while waiting for approval of FEC.

These problems have become intractable over the years and there is need to develop innovative approach to solving them. The refining companies need to leverage on the knowledge and experience they have acquired over the years, seek new knowledge and technology that will enable them to combat these problems. This study seeks to examine the application of effective knowledge management in the achievement of organizational innovation of the refining companies in Nigeria. Knowledge management is very important for building innovation capacity of the organizations. In our current globalized world that is knowledge and information driven, it is only those companies that are able to build capacity to identify, create, acquire, process, share and apply new knowledge to their business and produce innovative and competitive products that can survive and grow.

There is scarcity of research done in Nigeria in the area of knowledge management and organizational innovation in the Nigeria oil industry. This study is therefore a contribution to solving the deficit in available literature in the area of Knowledge management and organizational innovation in the Nigeria oil industry particularly the oil refining companies.

It is against the background of the above stated problems that we examined, in this study, knowledge management of refining companies in Nigeria with a view to identify the processes, procedures and problems that may be responsible for the current state of things in Nigeria refineries. The findings and recommendation of this study will assist policy makers and the management of these companies to build innovation capacity, achieve their goals & objectives, and contribute to the diversification of Nigeria's economy.

1.3 Aim and Objectives of the Study

The aim of this study is to determine the relationship between Knowledge Management and organizational innovation of refining companies operating in Nigeria. Specifically the objectives of the study are to:

- (i) Determine the relationship between knowledge identification and organizational innovation.
- (ii) Determine the relationship between knowledge organization and organizational innovation.
- (iii) Ascertain the relationship between knowledge storage and organizational innovation.
- (iv) Ascertain the relationship between knowledge dissemination and organizational innovation.
- (v) Examine the relationship between knowledge application and organizational innovation.

2.0. LITERATURE REVIEW

2.1 Theoretical Framework

2.1.1. Schumpeter's Innovation Theory

Joseph Schumpeter was an Austrian economist who viewed innovation as the critical dimension of economic change. He believed that economic change takes place due to innovation, entrepreneurial activities and market power. Schumpeter was particularly interested in how market innovations affect capitalist systems. In a book titled *Capitalism, Socialism and Democracy* published by Schumpeter in 1942 he used the term *creative destruction*. He defined *creative destruction* as a 'process of industrial mutation that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one. Thus *Creative Destruction* takes place when something new replaces something older. It can be new technology (or process), new product or new administrative or management style. Creative destruction is an important economic concept that can be used to explain the dynamics of industrial change, such as the transition from a competitive market structure to a monopolistic one or vice versa. Schumpeter's theory of innovation focuses on understanding the reason why some companies are able to innovate better than others and linked this ability to the size of the firm. Schumpeter initially postulated that small firms, due to its relative flexibility, are in a better position to innovate when compared with large firms that suffer from their bureaucratic structures. However he later changed his views and stated that larger firms with monopolistic power that possess better resources and market power could have innovativeness advantage (Naqshbandi & Kaur, 2015). Based on this theory flexible organizational structure, market power and organizational resources are stimulants for innovation. Thus the refining companies operating in Nigeria which enjoy monopolistic market power and huge resources are well placed to be innovative.

2.1.2 Knowledge- Based Theory

The underlining theory that helps to understand the concept of knowledge management is the knowledge-based theory developed by Grant (1996). The author argues that the source of competitive advantage in a dynamic business environment is not because of the knowledge that is repository to the organization since the value of such knowledge is lost quickly due to imitation and obsolescence. On the contrary, sustained competitive advantage is determined by non-proprietary knowledge in the form of tacit individual knowledge which is both unique and relatively immobile. Given that the knowledge is possessed by individual employees in the organization there will be need for the organization to integrate the specialized and tacit knowledge of the individuals in order to achieve competitive advantage. The knowledge-based theory contends that organizations are all heterogeneous knowledge-bearing entities that use and store internal knowledge, competencies and capabilities that are vital for the survival, growth and success of the organization (Hakanson, 2010). The main import of knowledge-based theory is that organizations exist the way they do based on their ability to manage knowledge efficiently and as knowledge-bearing entities that apply knowledge to the production of their goods and services (Foss, 1996). Understanding of knowledge based theory will enhance management of knowledge within and outside the firm and its application to achieve organizational innovation which is the main purpose of this study.

2.1.3 The Concept of Knowledge Management

This phase of evolution of human society is called knowledge era or information age. This knowledge era or information age provides information technology competitive advantages that depend on learning faster than competitors and finding exclusive knowledge (Grant, 2001). Knowledge management efforts have a long history which includes on-the-job discussions, formal apprenticeship, discussion forums, corporate libraries, professional training and mentoring programs. Knowledge management as stated by Armstrong (2012) is “concerned with storing and sharing the wisdom, understanding and expertise accumulated in an organization about its processes, techniques and operations. It involves transforming knowledge resources by identifying relevant information and then disseminating it so that learning can take place.”

Knowledge management can be described as a process which helps organizations to identify, select, organize and publish (transmit) information and important specialties. It is part of the organizational memory and often exists in an unstructured form in the organization (Turban & McLeans, 2002). Knowledge management requires the awareness of the existing knowledge in the organization. It involves the creating, sharing and transferring of knowledge, employing the existing knowledge and acquiring, storing, and accumulating new knowledge through organizational learning in line with the strategy and culture of the organization (Sallis & Jones, 2002).

Recent developments in data processing and network technologies have increased real time global access to data and information via the internet. Following this development, Malhotra (2001) stated that knowledge management “embodies organizational processes that seek a synergistic combination of data and information processing capacity of information

technologies, and the creative and innovative capacity of human beings”. Alavi and Leidner (1999) define knowledge management as “a systemic and organizationally specified process for acquiring, organizing, and communicating both tacit and explicit knowledge of employees so that other employees may make use of it to be more effective and productive in their work.” Malhotra (2000) is of the opinion that “knowledge management caters to the critical issues of organizational adaptation, survival and competence in the face of increasingly discontinuous environmental change.” Knowledge management focuses on knowledge identification, description, organization, and increasing its value through the possibility of reusing it.

Scarborough (2003) defined knowledge management as “any process or practice of creating, acquiring, capturing, sharing and using knowledge wherever it resides, to enhance learning and performance in organizations”. The authors went on to state that knowledge management focuses on the development of firm – specific knowledge and skills that resulted from organizational learning processes. Knowledge management involves both stocks and flows of knowledge. Stocks include expertise and encoded knowledge in computer system while flows represent the way in which knowledge is transferred from people to people or from people to a knowledge database. Tan (2000) also defined knowledge management as “the process of systematically and actively managing and leveraging the stores of knowledge in an organization”.

Knowledge is possessed by both the organization and people in the organization. Organizations operational, technical and procedural knowledge can be stored in databanks and found in reports, libraries, policy documents, manuals and presentations, it can be shared in the organization through information systems, meetings, seminars, workshops, courses, publications and ‘communities of practice’ (Armstrong, 2012). ‘Communities of practice’ was defined by Wenger and Snyder (2000) as ‘groups of people informally bound together by shared expertise and a passion for joint enterprise.’ The intranet and internet also provides effective medium for knowledge dissemination. Knowledge is acquired by individual employees in an organization through their own experiences at work that will not necessarily be shared formally or even informally with their colleagues. Such knowledge possessed by individual employment may be crucial to the operation and growth of the organization. The knowledge in the organization may be critical to the operation and growth of the business and could be lost or taken elsewhere by employees if they leave the organization. So one of the key issues in knowledge management is how such individual knowledge (tacit knowledge) can be identified, documented and converted to organizational knowledge (explicit knowledge). Knowledge Management therefore refers to a systematic and organizational specific framework to capture, acquire, organize and communicate both tacit and explicit knowledge of employees so that other employees may utilize them to be more effective and productive in their work and maximize the organization’s knowledge (Alavi & Ierdner, 1999; Davenport & Prusak, 1998).

There are critical components of Knowledge Management that can be distilled from literature. In this study, five components or dimensions of Knowledge Management have

become apparent. These are knowledge identification, knowledge organization, knowledge storage, knowledge dissemination and knowledge application in that order. An effective knowledge management should enable an organization to be more innovative, improve operational efficiency, reduce cost, achieve higher productivity and boost revenue. We are now in information age where knowledge rather than physical assets or financial resources is the key to competitiveness.

2.1.4 The Concept of Organizational Innovation

There are many definitions of innovation in literature. According to Chen et al. (2004), “innovation refers to the introduction of a new combination of the essential factors of production into the production system. Innovation capital is the competence of organizing and implementing research and development, bringing forth the new technology and the new product to meet the demands of customers. It involves new product, the new technology, the new market, the new material and the new combination.”

Broadly speaking, innovation can be seen as the implementation of discoveries and interventions and the process by which we produce new outcomes, whether products, systems or processes (Gloet & Terziovski, 2004). The authors went on to distinguish between two types of innovation: radical and incremental innovation. Radical innovations often make existing skills and knowledge redundant thus necessitating different management practices. Radical innovations are important in considering long-term success as they require development and application of new technology, some of which may change existing market structures. Radical innovations often put the business at risk because they are more difficult to commercialize. On the other hand incremental innovations usually involve line extensions modifications of existing products. Incremental innovations does not require significant departure from existing business practices and are therefore likely to enhance existing internal competencies by providing the opportunity to build on existing know-how.

Herkema (2003) described innovation as a knowledge process aimed at creating new knowledge process aimed at creating new knowledge geared towards the development of commercial and viable solutions. Innovation is a process wherein knowledge is acquired, shared and assimilated with the aim to create new knowledge, which embodies products and services. Furthermore, Herkema (2003) stated that innovation is the adoption of an idea or behaviour that is new to the organization. The basic and foremost purpose of innovation is to produce new knowledge which can be developed into practical solutions to societal problems. The innovation can be a new product, a new service or a new technology.

The main objective of innovation is to create value for the business. In today’s competitive world, innovation is the soul of business because it helps organizations to produce unique products and services. The rapid changes in taste and preferences of customers in both emerging and developed markets underscore the importance of innovation. Organizations that are not able to produce innovative products and services are not likely to survive in the industry because of competition. Innovation fuels organization’s growth in any type of environment (Kashif et al., 2011).

The innovation process is essential to the performance of organizations (Marins, 2008). In this study three measures of organizational innovation were used. These are process innovation, product innovation and administrative innovation. Leonard and Waldman (2007) described process innovation as the creation of process, new improvement to existing process. This has to do with the implementation of a new and significantly improved production or delivery method, which includes changes in techniques, equipment and or software (Bi, Sun, Zheng & Li, 2006). However it should be noted that minor changes, or improvements, an increase in production or service capabilities through the addition of manufacturing or logistical systems which are very similar to those already in use, ceasing to use a capital replacement or extension, changes resulting purely from changes in factor prices, customisation, regular seasonal and other cyclical changes, trading of new or significantly improved products are not considered innovations (Innoviscop, 2006).

Product innovation is defined by Damanpour and Gopalakrishnan (2001) as the development and commercialization of new product to create value and meet the needs of the external user or the needs of the market. Product innovation is a systematic work process which draws upon an existing knowledge gained from research and practical experiences directed towards the production of new materials, products and devices, including prototypes. Product innovation can simply be defined as the creation and subsequent introduction of a good or service that is either new, or improved version of previous goods or services. Organizations can use product innovation to differentiate their product and gain competitive advantage. Thus one of the advantages of product innovation is that it stimulates growth and expansion. It also gives the organization a competitive advantage. One of the disadvantages of product innovation is that it usually requires the injection of lots of capital and time into it, which requires constant experimentation which incurs higher cost which may ultimately cause business failure.

Administrative innovation can be described as the performance derived from the changes to organizational structure and administrative process, reward and information system, and it compasses basic work activities within the organization which is directly related to management (Chew, 2000; Damanpour & Evan, 1984). Administrative innovations are defined as those that occur in the administrative component and affect the social system of an organization. The social system of an organization consists of the organizational members and the relationships among them (Trist & Bamforth, 1951). It includes those rules, roles, procedures, and structures that are related to the communication and exchange among organizational members and between the environment and organizational members (Cummings & Srivastva, 1977). Administrative innovation involves the introduction of a new management system, administrative process, or staff development programme. However it should be noted that administrative innovation does not bring forth a new product or new service, but indirectly influences the introduction of products or services or the processes required to produce them (Kimberly & Evanisko, 1981).

3.0 METHODOLOGY

A cross sectional survey approach was used. A structured questionnaire was used to collect primary data from respondents while secondary data was sourced from management books, journals, newsletters and online publications. There are a total of 35 questionnaire statement items. Knowledge management has twenty items while organizational innovation has fifteen items. The response format was based on 5 point Likert Scale ranging from Strongly Disagree (SD) = 1 to Strongly Agree (SA) = 5.

The three refining companies in Nigeria located at Warri, Port Harcourt and Kaduna constitute the population of the study. The study is an organizational level study with managers and heads of departments of the companies as target respondents and unit of analysis. Based on the data obtained from the company, the total sample size made up of total number of managers, heads of departments and their deputies, is about 150 for the three refining companies in Nigeria. A total of 210 questionnaires were distributed out of which 157 were properly completed and returned, giving a response rate of 75%. Purposive sampling technique was used since the respondents are restricted to certain category of workers.

3.1 Method of Data Analysis

Descriptive and inferential mode of data analysis was used. The descriptive mode involved the use of mean, standard deviation, percentages, frequencies and bar charts while the inferential mode is mainly for multivariate data analysis. The multivariate data analysis technique employed is the Structural Equation Modelling (SEM). The bivariate relationship between the predictor variable (knowledge management) and the criterion variable (organizational innovation) were tested using Pearson Correlation Coefficient. IBM SPSS Version 21 and AMOS version 21 were used to carry out data analysis of this study.

3.2 Validity and Reliability of Instrument.

The validity of the instrument means that the instrument used for primary data collection has correct contents as to measure exactly what it is meant to measure. According to Baridam (2001), validity is perhaps the most important criterion for evaluating sufficiency and efficiency of criterion measures. It was tested using face content method whereby the questionnaire is rated by experts in the field of study and their verdict that the instrument is valid means that the instrument has passed validity test. A pilot survey was conducted and the assessment of responses by experts in the field was used to pass the validity test of the instrument.

The reliability of all the constructs was tested by computing its Cronbach's Alpha Coefficient as shown in Table 3.1 below.

Table 3.1: Results of Cronbach's Alpha Computations For Instrument Reliability Test

S/NO	FACTORS N = 157	NO OF ITEMS	CRONBACH'S ALPHA
1	KNOWLEDGE IDENTIFICATION	4	0.71
2	KNOWLEDGE ORGANIZATION	4	0.72
3	KNOWLEDGE STORAGE	4	0.73
4	KNOWLEDGE DISSEMINATION	4	0.71
5	KNOWLEDGE APPLICATION	4	0.71
6	ORGANIZATIONAL INNOVATION	15	0.89
7	ALL MEASURES (1 TO 6)	35	0.93

Source: SPSS output on Research Data (2019)

Table 3.1 shows the values of the Cronbachs Alpha which range from 0.71 to 0.93. All the Cronbach's alpha coefficients are above 0.70 threshold suggesting reliability and consistency of instrument. Thus the instrument of the study passed validity and reliability tests.

4.0 RESULTS AND DISCUSSION

The descriptive statistics of the univariate analysis of the measured constructs were carried out for the purpose of having an overview of the responses from the respondents for each of the measured variables as contained in the 35 measuring statements in the questionnaire. The descriptive statistics of the univariate analysis of the predictor variables and the criterion variable are as shown in table 4.1 below.

Table 4.1 Descriptive Statistics of the Predictor Variables and Criterion Variable

Variables N =157	Mean	Minimu m	Maximu m	Range	Maximum / Minimum	Variance	N of Items
KID	4.175	4.076	4.357	.280	1.069	.017	4
KOG	4.078	3.943	4.255	.312	1.079	.019	4
KST	3.916	3.535	4.306	.771	1.218	.099	4
KDS	4.183	4.006	4.382	.376	1.094	.029	4
KAP	4.035	3.898	4.280	.382	1.098	.030	4
ORG_INV	3.943	3.701	4.191	.490	1.133	.016	15

Source: SPSS Output on Research Data (2019).

Table 4.1 shows that the predictor variables- Knowledge Identification, Knowledge Organization, Knowledge Storage, Knowledge Dissemination and Knowledge Application have mean scores of 4.18, 4.08, 3.92, 4.18 and 4.04 respectively. The mean responses all hover around 4. Based on the 5 point Likert scale, which has Agree = 4 and Strongly Agree =

5, it means that most of the 157 respondents agree that their organization carry out proper knowledge management which involves knowledge identification, knowledge organization, knowledge storage, knowledge dissemination and knowledge application. Each of the dimensions of knowledge management has four questions each and the minimum and maximum mean values for each of the questions is as shown in table 4.1 above. Similarly the mean value of the criterion variable, organizational innovation, is 3.94. There are a total of 15 questions with five questions for each of the three measures of organizational innovation which are process, product and administrative innovation. This also suggests that most respondents agree that the refining companies in Nigeria are innovative and this involves process innovation, product innovation and administrative innovation.

4.1 Test of Hypothesis

The test of hypothesis was carried out using IBM SPSS AMOS Version 21 software. The structural model linking the predictor variables (knowledge identification, knowledge organization, knowledge storage, knowledge dissemination and knowledge application) and the criterion variable (organizational innovation) is as shown if figure 4.1 below.

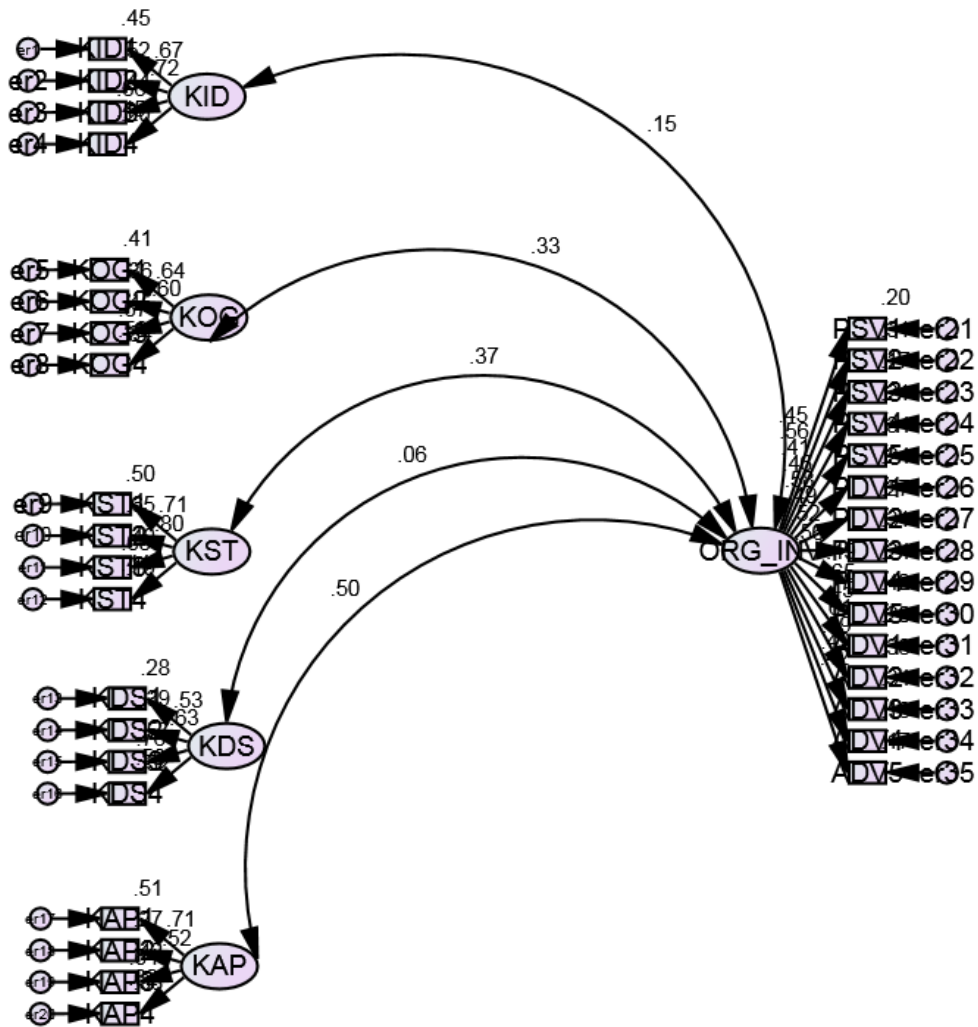


Figure 4.1. Structural Model Linking Predictor variables and Criterion variable

The IBM SPSS AMOS Version 21 output result of the test of the five null hypotheses is as shown in table 4.2 below.

Table 4.2: Result of Test of Hypotheses (Ho:1 to Ho:5)

S/NO	PATH	TESTING RELATIONSHIP	r	S.E	P	REMARKS
1	KID TO ORG_INV (Ho:1)	Knowledge Identification And Organizational Innovation	0.15	0.01	0.104	SUPPORTED
2	KOG TO ORG_INV (Ho:2)	Knowledge Organization And Organizational Innovation	0.33	0.02	0.004	NOT SUPPORTED
3	KST TO ORG_INV (Ho:3)	Knowledge Storage And Organizational Innovation	0.37	0.02	0.004	NOT SUPPORTED
4	KDS TO ORG_INV (Ho:4)	Knowledge Dissemination And Organizational Innovation	0.06	0.01	0.495	SUPPORTED
5	KAP TO ORG_INV (Ho:5)	Knowledge Application To Organizational Innovation	0.50	0.03	0.000	NOT SUPPORTED

The first null hypothesis (Ho:1) states that “there is no significant relationship between knowledge identification and organizational innovation of refining companies in Nigeria. The result of the test of the hypothesis as shown in table 4.2 is as follows: correlation (r) = 0.15, P-value = 0.104 (which is far more than 0.05 for a two-tailed test at 95% level of significance). The result indicates that there is no significant relationship between knowledge identification and organizational innovation of refining companies in Nigeria. Therefore the null hypothesis is supported.

The Second hypothesis (Ho:2) states that there is no significant relationship between knowledge organization and organizational innovation of refining companies in Nigeria. The result of the test of the hypothesis as shown in table 4.2 is as follows: correlation (r) = 0.33, P-value = 0.004 (which is less than 0.05 for a two-tailed test at 95% level of significance), standard error is 0.02. The result indicates a significant positive relationship between

knowledge organization and organizational innovation of refining companies in Nigeria. Therefore the null hypothesis is not supported and the alternative hypothesis is accepted.

The Third hypothesis (Ho:3) states that there is no significant relationship between knowledge storage and organizational innovation of refining companies in Nigeria. The result of the test of the hypothesis as shown in table 4.2 is as follows: correlation (r) = 0.37, P-value = 0.004 (which is less than 0.05 for a two-tailed test at 5% level of significance), standard error is 0.02. The result indicates a very significant positive relationship between knowledge storage and organizational innovation of refining companies in Nigeria. Therefore the null hypothesis is not supported and the alternative is accepted.

The fourth hypothesis (Ho:4) states that there is no significant relationship between knowledge dissemination and organizational innovation of refining companies in Nigeria. The result of the test of the hypothesis as shown in table 4.2 is as follows: correlation (r) = 0.06, P-value = 0.495 (which is far more than 0.05 for a two-tailed test at 5% level of significance), standard error is 0.01. The result indicates no significant relationship between knowledge dissemination and organizational innovation of refining companies in Nigeria. Therefore the null hypothesis is accepted.

The fifth hypothesis (Ho:5) states that there is no significant relationship between knowledge application and organizational innovation of refining companies in Nigeria. The result of the test of the hypothesis as shown in table 4.2 is as follows: correlation (r) = 0.50, P-value = 0.000 (which is less than 0.05 for a two-tailed test at 5% level of significance), standard error is very minimal at 0.03. The result indicates a very significant positive relationship between knowledge application and organizational innovation of refining companies in Nigeria. Therefore the null hypothesis is rejected and the alternative hypothesis is accepted.

5.0 CONCLUSION AND RECOMMENDATIONS

The purpose of this study was to evaluate the relationship between the dimensions of knowledge management and organizational innovation. The findings of the study revealed that the refining companies practice knowledge management which incorporates knowledge identification, knowledge organization, knowledge storage, knowledge dissemination and knowledge application. Three dimensions of knowledge management namely knowledge organization, knowledge storage and knowledge application each have significant and positive relationship with organizational innovation. The remaining two dimensions of knowledge management, namely; knowledge identification and knowledge dissemination, each does not have any significant relationship with organizational innovation. Based on order of level of influence starting with the one with the greatest impact, we have knowledge application, knowledge storage and knowledge organization. The findings of this study emphasizes the need for the refining companies in Nigeria to focus on creating work environments and managerial practices that encourage employee innovativeness such as putting in place appropriate reward system that will enhance the generation of new ideas that will promote organizational innovation, team work and sharing of knowledge among

employees. The management of refining companies should create friendly work environment that promotes trust, knowledge acquisition and sharing among workers. These are needed for supportive organizational structure and managerial style that shape employee attitude and behavior to foster organizational innovation.

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