The Link between Performance and Knowledge Management in Nigerian Public Tertiary Institution

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Abstract

This article is aimed at examining the link between performance and knowledge management with respect to classes: competitive advantage, innovation and growth as well as creating, capturing, organising, storing, disseminating, and application of knowledge, are the measures of knowledge management adopted for this study. Basically, we asked three research questions that lead to the formulation of hypothesis.   Questionnaire administered were based on cluster and stratified sampling. We found out that knowledge management is linked positively to organizational performance. In this era of knowledge economy, we concluded that management should focus on knowledge management application; to gain competitive advantage, innovation and growth. Public tertiary schools can gain these three variables, if they apply knowledge management.

Keywords: federal government, schools, performance, organization and industrialization, competitive advantage, innovation and growth.

1.0 Preamble

From the very beginning, Nigeria is known with agricultural produces, agriculture is central in the provision of the nation's food and industrial situations. It alleviates all deficits and prevents future problems; but its contribution to total GDP started falling in the sixties, seventies and even nineties. The fall in GDP from agricultural produce was the oil boom of the mid -70s to early 80s. The discovery of oil and its boom caused a great shift from agricultural produce to the exploitation of oil. Nigeria became a mono-product economy. In the international oil market, there was instability cum oil as a wasting asset, the problem in the international oil market was no revealed, there was neglect of policy in the non-oil sector and agriculture. There is the need for industrial development in the land because of waste in the land, oil is a wasting assets.

The Corruption Agent of the Federal Government under President Mohammed Buhari is aim at facilitating the economy industrialisation process. As part of the nation's vision 2020, we have hope that industrialisation would breed economic development and the country would be leading industrialised countries comic 2020. The corruption policy of this administrative is not in the wrong direction. Nigeria as an economy did not just need industrialisation but we need indutialisation backed up with effective knowledge management. We are currently in global village, as such we are moving to an economy where competitive advantage will be less a function of natural resource endowments and capital labour ratios rather a function of technology and skills. What will give a nation like Nigeria a competitive advantage is improvement in knowledge and well withal to manage the knowledge in a better way. Of course, critical to Nigeria's economy development is to create "Creative Knowledge Management".

It is interesting to note that human ingenuity will play a better note than the mother nature. Environment itself is dynamic in nature, as such to exist as a company and sub-stain industrialisation, there is the need to create new knowledge. Sub-stainability and survive of companies should be able to operate into the foreseeable future not just by innovation but should adopt to new knowledge creation. Competitive organisation managers should be able to create and exploit knowledge, as they need to grep and adopt knowledge management for organisation's optimal performance. (Nomaka and Tacuchi, 1995).

This study focused on Federal University of Petroleum Resources, Effurun (FUPRE) as an organisation that need to operate into the foreseeable future with respect to creating and exploiting knowledge management for optimal performance.

1.1 Brief History of Federal University of Petroleum Resources, Effurun

Federal University of Petroleum Resources, Effurun, (FUPRE) is a publicly – owned Federal Government University established in the year two thousand and seven (2007). This is to correct the past neglect of the Niger Delta region. The Petroleum Training Institute (PTI) was used as the University's take-off campus, PTI serve as the temporary site of FUPRE. (Fupre, academic brief vol.1, 2007).

FUPRE currently operates in Uvwie local government area in Ugbomro, Delta State, as its permanent site. The University was created to meet with the environmental challenges, to meet with the immediate community challenges, with respect to direct employment in the oil & gas industry; this poses a complex and exciting challenge for scientific, technical and management education at the highest level in the country. Thus, these challenges will be met by the University, to focus on advanced training in the fields of science, engineering and management as one of its goals. Already on ground, is College of science, College of technology (engineering), and that of College of management which is about to start with a dean – Prof G. O. Yomere. FUPRE is to mount programmed that develop the requisite capacities – scientific, engineering, and management – to promote leadership and service in the petroleum industry. (FUPRE, academic Brief vol.1, 2007). The University is to create graduates with entrepreneurial spirit who will create jobs and not relying on employment. To meet all the above challenges, FUPRE cannot stand aloof without embracing effective knowledge management. FUPRE must/should do its best to grab the knowledge in the heads and units of professors, quality administrators that made up the strengths. Thus, FUPRE, should work at creating, capturing, organising, storing, sharing and applying knowledge if it wants to be competitive and operate into the foreseeable future as well as successful.

The current Vice Chancellor, Professor Akii Ibhadode in his vision wants the University to be among the top 500 Universities in the world in the 21st Century. FUPRE is a specialized Petroleum University, first of its kind in Africa and eighth in the world.

The challenges are how FUPRE will create new knowledge and exploit the old knowledge and what impact will the grabbing of the tacit knowledge have on the success of FUPRE.

FUPRE success will be achieved, if it becomes, the world class education, training, research, consultancy, and extension service place as the first 500 world Universities in the world (Ibhadode, 2015). FUPRE need to create effect knowledge to achieve all this.

1.2 Objective of the Study

The study seeks to examine the link between performance and knowledge management with respect to competitive advantage, innovation and growth in (FUPRE).

1.3 Research Question

To achieve the above objective of study, the following research questions were raised.

P_1Is there a positive link between competitive advantage and knowledge management?
P_2Is there a positive link between innovation and knowledge management?
P_3 Is there a positive link between growth and knowledge management?

1.4Research Hypotheses

The null hypotheses to be tested are as follows:

H_1: There is no positive link between competitive advantage and knowledge management
H_2: There is no positive link between innovation and knowledge management?
H_3: There is no positive link between growth and knowledge management?

1.5 Scope of the Study

This study is concerned with concept of knowledge, knowledge management, the types of knowledge, transfer of knowledge, and the link between performance and knowledge with respect to Lawson; 2002 and Chin-Loy and Mujtaba, (2007), as it relates to the measurement of knowledge management effectiveness.

2.0 Literature Review

The review of literature is concern the concept of knowledge, knowledge management, the types of knowledge management, the transfer of tacit knowledge, explicit knowledge and the link between performance and knowledge management.

2.1 Concept of Knowledge

Knowledge is defined as that which must do with a familiarity, awareness or understanding of someone or something, such as facts, information, description, or skills, which is acquired through experience or education or education by perceiving, discovering or learning. It must do with that which is related to the capacity of acknowledgment in human beings. (Wikipedia, 2017), Probert S. (2003).

Knowledge is the fact or condition of processing in these mental grasp truths, facts, principles, or other objects of perception. It can be an experience concepts, values, or beliefs that increase an individual's capacity to take effective action Keramati and Azadeh, (2007), Alavi and Leidner, (1999).

Knowledge is also defined as familiarity, awareness, understanding gained through experience or study and results from making comparisons, identifying consequences, and making connections, knowledge is a know-how or applied action. (Servin and De Brum, 2005). It will surprise you to know that, in this century, all jobs are knowledge work and as such all staff or workers are knowledge worker or staff. Thus, the jobs of knowledge workers are assuredly, depend more on knowledge and not manual skills. Knowledge can be acquired through data and information; is there is any difference between knowledge, data and information? Of course, in reverse order, data is said to be raw figures and facts – statistical, while information seen as processed data or a flow of message or message flow; and knowledge is defined as actionable information in the mind of individuals. Thus, knowledge is gotten from information, and it is richer and more meaningful that information. However, if you communicate knowledge or articulate it to others, whether as email, sms, speech making or as a document-written down, it stands as information. Knowledge is said to collective understandings, stories, values, and beliefs, seen in practical activity-based competencies and key member's skills of the organisation; it is built and found as conceptual understanding and key members, cognitive skills. It is also built in technology, rules and the procedures of the organisation, (Backler, 1995).

2.2 Knowledge Management (KM)

Knowledge Management is the management of information within the organisation with respect to influencing three corporate building blocks, that is, Corporate Strategy, Corporate Culture and Systems. Knowledge Management is all about getting knowledge from those who have it to those who need it to improve organizational effectiveness. It is the collection of processes that govern the creation, dissemination, and utilization of knowledge.

It has been in existence for a long time. It is the process or practice of creating, acquiring, capturing, sharing and utilizing knowledge. (Newing, 1999). It is also the process through which organisation generate value from their intellectual and knowledge based assets (Levinson, 2007). The combination of organizational culture, strategic goals, individual needs, and expertise of its people to create an atmosphere of learning and growth (ASTD, 2009). However, the process of systematically and activity managing and the stores of knowledge leveraged in an organisation is called knowledge management, (Landon and Landon, 1998).

Knowledge management is the systematic management of knowledge processes by which knowledge is created (Newing, 1999). In one word, knowledge management, in all the definition above, is a process; though authors differ in the process of categorization. However, the process should create value for the organisation. Our stand in this article is that, knowledge management is a process of creating, capturing, organising, storing, spreading and application of it, to create organizational benefits of the three variables: Competitive advantages, innovation and growth.

2.2.1 Types of Knowledge Management (KM)

In this article, we are concerned with only tacit knowledge, but there are dual knowledge management of organisation: tacit and explicit knowledge (Levinson 2007).

2.2.2 Tacit Knowledge

Tacit knowledge is personal, context-specific and it is hard to formalized and communicated (Nomaka and Takeuchi, 2003). It is an individual image of reality and visions for the future, that is, what is? and what ought to be? (Probert, 2003). This knowledge has a dual spread: Cognitive and technical Knowledge. Cognitive knowledge is schematic, paradigms, viewpoints, perspectives, and beliefs that can help people to perceive and define the world; while technical knowledge is, the concrete know down, crafts and skills – primarily bodily skills. The most important type of knowledge is tacit knowledge (Nomaka and Takeuchi, 2003). Our attention is focused on this knowledge. We can realised competitive advantage through knowledge management with respect to identifying the valuable tacit knowledge have by members of the organisation and of course, making it explicit (Balthazard and Cooke, 2004). They believed that once tacit knowledge is made explicit, then it can be mined, organized, stored, and perhaps shared throughout the organisation to point out innovation. When tacit knowledge is made explicit; we say there is new knowledge. The know-how in people's heads is referred to as tacit knowledge. The knowledge in the heads of workers/staff that is not shared is the most important. This of course, is a threat which should be seen as a challenge to leaders in organisation. Leaders in organisation is faced with this challenge, of how to get it out, and recognise it, to generate, share and as well manage it properly. Knowledge deposits in worker's heads and managing it is not possible or desirable (Servin and De Brum, 2005). They advised that leaders can only create, learn, share, and use Knowledge together for organizational benefits, its people, and customers. This knowledge is more valuable since it gives context for people, places, ideas and experiences and requires extensive personal contact as well as trust to share effectively and it is obtained through leaning and communication that can be changed to explicit knowledge (Lara, 2008).

2.2.3 How to Transfer Tacit Knowledge

Tacit knowledge can be transferred or distributed through Information technology (IT), shadowing and joint problem solving, and of course, the implicit mode instead of codifying. Information technology (IT), can be used to distribute knowledge by means of e-mail, groupware, instant messaging.

The best practices of transferring tacit knowledge in any organisations are shadowing and joint problem solving. Shadowing, as a means of transferring knowledge, simply put, is the process whereby staff with less experienceare made to observed and work with an experienced staff in the organisation; to study how they do their work. Observations will be discussed with the experts, to deepen their dialogue and of course, crystallise the transfer of knowledge, (Levinson, 2007). For joint problem solving, the experts work with the beginners on a given assignment in organisation, so that the experts approach world be made open and clear. Both the experts and the beginners work-together. Knowledge is well shared directly between staff either by conversations or indirect observation.

Thus, we have knowledge audit when it is formalised, that is staff share information in the organisation laterally. (Davenport and Prusak, 1998), (Uhlaner, Meijaard, and Folkeringa, 2007). Implicit mode is the best mode to transfer valuable tacit knowledge, it is advised not to codify in transferring knowledge (Levinson, 2007).

2.3 Knowledge Management and Performance: The Link

There are triple criteria for performance evaluation, these are: innovation, competitive advantage and growth. Organisational benefits are innovation, competitive advantage and growth; there is a strong link between Organisational benefits and knowledge management (Chin-Loy and Mujtaba, 2007).

With respect to Canonical correlation, there are positive effects on innovations, as it concerns knowledge storage, acquisition, selection and diffusion. That is, knowledge storage, acquisition, selection and diffusion has *positive* effects on innovation (Chang and Lee, 2003). Knowledge management has *significant* influence on business management performance and competitive edges (Chang and Lee, 2007). There are also positive effects of knowledge management on labour/staff (Kremp and Mairesse, 2003). It is also acknowledged that knowledge management infrastructure and processes have significant effects on the success of knowledge management; that Information technology impact on knowledge management is not linear, however, tread through the processes. And leadership, culture and strategy has influence knowledge management infrastructure (Khalifa, and Vanessa, 2003). The success of knowledge management depends on these factors: Knowledge shaving, Knowledge creation and knowledge transfer (Keramati and Azudeh, 2007), knowledge management infrastructure is influenced by leadership, culture and strategy.

3.0 Methodology

The study is done to examine the relationship between performance and knowledge management in Federal University of Petroleum Resources, Effurun. Survey research was conducted to determine the relationship between performance and knowledge management. The population of study is the academic, technologists, and administrative staff of the school. The sample of study is the knowledge staff in Federal University of Petroleum Resources, Effurun (FUPRE). The staff strength of the University is between four hundred and eight hundred staff. We used Cluster and Stratified sampling. This study focused on two arms: the administrative arm, which is made up of the Vice Chancellor's office, the Registry, and the Bursary; and the academic arm, which is made up of the College of Sciences, College of Technology, and the Library. We stratified administration into four (4) parts: top management, middle management, supervisory management, and the rank and file, while the academic arm was stratified into Professors, Readers, Senior Lecturers, and Lecturers, as well as the support staff-fettled into the administrative categories. We administered questionnaires to congregational members during one of the congregation meeting in the school. We distributed about one hundred (100) questionnaires, and only eighty (80) were returned. Application was made of seventy-two (72) questionnaires, as eight (8) was rejected because of wrong and incomplete filling. With respect to demographics, four (4) questionnaires were not used because of incompletion, as such, use was made of 68 questionnaires. Thus, the response rate was seventy-two percent (72/100.100).We applied Lawson's Knowledge Management Assessment Instrument (LKMAI), it is made up of six-process typology: Knowledge creation, Knowledge capture, Knowledge organisation, Knowledge storage, Knowledge sharing, and Knowledge application.

There are six dimensions in LKMAI with each scale having four descriptive statement, and Likert scale was used, from strongly agree to strongly disagree (Chin-Loy Mujtaba, 2007).

3.1 Variables Specification

We denote Knowledge Creation as KC, Knowledge Application as KA, Knowledge Organisation as KO, Knowledge Storage as KS, Knowledge Dissemination as KD, and Knowledge Capturing as KC.

4.0 Analysis of Data

This study is concerned with the relationship between performance in Organisation and knowledge management. We have four tables showing the rank, distribution, educational level, promotion, prospects, job training and awareness of knowledge management programme in FUPRE.

Table 1: Ranking Of Workers In Fupre.

Rank	Frequency	Percentage
Senior Management	26	38
Middle Management	30	44
Technical Staff	2	03
Support Staff	2	03
Not Applicable	8	12
TOTAL	**68**	**100**

The above table 1, shows that at middle level of management workers are 30 out of 68 giving a percentage of 44, with senior management 26 giving a percentage of 38, while technical and support staff are 3 percent each.

Table 2: Educational Attainment In Fupre.

Educational Level	Frequency	Percentage
High School Graduate	2	3
Technical Training	0	0
Under Graduate Degree	0	0
Graduate Degree	56	82
Others	10	15
TOTAL	**68**	**100**

The above table 2, shows that most respondents have graduate degree (Masters) were about 82%, while 15% was Ph.D. and others. 3 percent was high school graduate.

Table 3: Job Training In Fupre.

Job Training	Frequency	Percentage
1	24	35
2	10	15
3	6	9
4	4	6
None	24	35
TOTAL	**68**	**100**

From the table 3 above, those that received training each are 35 percent; those of two trainings are 15 percent, those of three trainings are 9 percent while four and more trainings are 6 percent and no trainings at all, are 35 percent.

Table 4: Aware Of Knowledge Management In Fupre.

KM in Place	Frequency	Percentage
Yes	22	32
No	8	12
Not Sure	36	53
Not Applicable	2	3
TOTAL	**68**	**100**

Table 4 shows that 32 percent believe that FUPRE has knowledge management programme in place, 12 percent indicated no knowledge management programme, more than half, that is 53 percent were sure not sure of it.

4.1 Hypothesis Testing

Based on the literature reviewed and logistics in place, we formulate the following hypotheses and are tested:

H_{01}: There is no positive relationship between competitive advantages and knowledge management.

H_{02}: There is no positive relationship between innovation and knowledge management.

H_{03}: There is no relationship between growth and knowledge management.

4.2 Model Summary and ANOVA Table for Hypothesis

Model Summary 1

	Change Statistics	
Mode	Sig.F. Charge	Durbin-Watson
1	.000	2.795

*[1] Predictors: Constant; KA, KO, KC, KS, KD, KCN

*[2] Dependent Variable: Competitive.

ANOVA 1

Model	Sum of Squares	*df*	Mean Square	*F*	Sig.
1 Regression	514.689	6	85.781	48.823	.000a
Residual	10.542	6	1.757		
Total	**525.231**	**12**			

*[1] Predictors: Constant, KA, KO, KC, KS, KD, KCN

*[2] Dependent Variable: Competitive.

Model Summary 2

	Change Statistics	
Mode	Sig.F. Charge	Durbin-Watson
1	.005	2.149

*[1] Predictors: Constant; KC, KO, KA, KS, KD, KCN

*[2] Dependent Variable: Innovation.

ANOVA 2

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	711.616	6	118.603	11.000	.005a
Residual	64.692	6	10.782		
Total	**776.308**	**12**			

*[1] Predictors: Constant, KC, KO, KA, KS, KD, KCN

*[2]Dependent Variable: Innovation.

Model Summary 3

	Change Statistics	
Mode	Sig.*F*. Charge	Durbin-Watson
1	0.04	2.085

*[1] Predictors: Constant; KC, KO, KA, KS, KD, KCN

*[2]Dependent Variable: Growth.

ANOVA 3

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	739.213	6	123.202	11.831	.004a
Residual	62.479	6	10.413		
Total	**801.692**	**12**			

*[1] Predictors: Constant, KC, KO, KA, KS, KD, KCN

*[2]Dependent Variable: Growth.

4.2 Results of Hypothesis

Hypothesis with respect to Competitive advantage, H_{01}:that there is no positive relationship between competitive and knowledge management was rejected because 96 percent of competitive advantages were explained by the various independent variables that made up the knowledge management. At 5 percent level of significance, the table 4.28 is less than the calculated *F*-stat of 48.82, revealing that, there is a highly positive and significant relationship; also confirmed by Durbin-Watson test of 2.795. ANOVA result also agreed that there is a positive link between competitive advantage and knowledge management. See Model Summary and ANOVA 1.

Hypothesis with respect to Innovation, H_{02}: that there is no positive relationship between innovation and knowledge management was also rejected based on the table 4.28 at 5 percent which is less than 11.00. There is a positive link between innovation and knowledge management. Both Durbin-Watson of 2.149 and ANOVA table 2 confirmed the positive link between innovation and knowledge management. See Model Summary and ANOVA table 2.

Hypothesis with respect to growth, H_{03}:that there is no relationship between growth and knowledge management was rejected too. Knowledge management explained 84 percent of growth. At 4 percent from the table *F*-4.28 is less than 11.83 calculated. Thus, there is a positive link between growth and knowledge management. Durbin-Watson and ANOVA confirmed the positive link. See Model Summary and ANOVA table 3.

5.0 Recommendations and Conclusion

The study shows that there is a positive link between performance in organisation and knowledge management.

5.1 Recommendation

The study agrees with the work of Chin-Loy and Mujtaba, 2007, that organisational performance is influenced by knowledge management. Not significant in determining performance in organisation were Knowledge Creation (KC), Knowledge Dissemination (KD), Knowledge Organisation (KO), Knowledge Application (KA); but Knowledge Storage (KS) and Knowledge Capturing (KC) were significant in determining competitive advantages; and critical to knowledge management programmes are Knowledge Capturing (KC), Knowledge Organisation (KO),Knowledge Dissemination (KD) and Knowledge Application (KA). These critical factors have not contribute to knowledge management programme in Federal University of Petroleum Resources, Effurun (FUPRE). The University need to carry out all these areas of knowledge management effectively to create competitive advantage, innovation and growth. Federal University of Petroleum Resources, Effurun at 10years should develop on the weaknesses with respect to these areas of knowledge management. Over 50 percent indicated that they are not aware of knowledge management programme; see table 4.

This implies that the school management does not disseminate information about its programmes and policies effectively. The workforce has a huge number of graduates and master's holders which would limit the amount of tacit knowledge available for exploiting. This information is very critical with E-library in place, we recommend the following:

- That Federal University of Petroleum Resources needs to carry out full-scale knowledge audit. To find out what its knowledge needs are, what knowledge assets are available, and their location; knowledge flow in the University, obstacles to getting the knowledge, the CODS but not SWOT analysis to knowledge management programmes. CODS – Challenges; Opportunities Development needs, and strength; parting with weakness and threats.
- Management should carry out employment programmes with respect to Senior academics or involve in massive training of its current workforce. Management should recruit Senior academics through good incentives.
- Management should have a better way of distribution knowledge, to share knowledge via communities of practices, to identify and apply best practices of knowledge management and harvesting.
- Knowledge centers should be built in the University, to collect, organise and share knowledge and information.
- Management should allow the less experienced to understudy the experts with respect to project team's setup; this will help in capturing existing knowledge and creating new knowledge.
- All weaknesses and threats should be discovered via exist interviews in the University. Management should see weaknesses as variables to develop on, and threats as challenges in the University.

5.2 Conclusion

This study is concerned with the link between performance and knowledgement. This study agrees with the work of Chin-Loy and Mujtaba, (2007). This paper focused on whether the various processes of knowledge management have influence on performance. Conclusively, knowledge capture had significant impact on competitive advantages; but knowledge creation was very significant on any of the dependent variables. The combination of the processes has positive link on performance. The University may do better by paying attention on the whole process of knowledge management. For the University to be competitive; innovative and have growth, the University should be involved in knowledge creating, capturing, organising, storing, disseminating and applying them at various tasks at all time.

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