Knowledge Management Strategies and Firm Performance: A Survey of Telecommunication Companies in Port Harcourt

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Abstract: *This study examined knowledge management strategies and the performance of Telecommunication companies in Port Harcourt. The objectives of this study are to determine the relationship between knowledge management strategies of knowledge creation; knowledge storage; knowledge sharing and knowledge application and firm performance. Four (4) hypotheses were formulated and tested. A survey research design was used with the administration of questionnaires to 72 respondents who were the officials of the telecommunication companies. First and second order confirmatory analysis showed that the factor loadings were high for the selected study variables. The Cronbach's alpha coefficients were also very high showing a good internal reliability. The strength of the relationship and hypotheses were tested by Spearman Rank order correlation coefficient. All the four (4) null hypotheses were rejected. The study findings show that there is a strong and significant relationship between knowledge management and its dimensions of knowledge creation; (r = 0.955, p<0.001), knowledge storage; (r = 0.962, p<0.001) knowledge sharing (0.965, p<0.001) and application of new knowledge (0.945, p<0.001), with firm performance measure of sales growth. It was recommended that Telecommunication companies should constantly monitor the environment to identify areas where new knowledge is required so as to gain a competitive advantage.*

Keywords: *Knowledge management, Firm performance, Telecommunication, Stratregies*

I. Introduction

In the initial stage of the Nigerian Telecommunication sector, until 2000 when the GSM was introduced, there were many Telecom companies without clear rules for the system operation, and different technological standards being used. Consequently, the service quality was very awful. The monopoly control was done by the state subordinate to the Communications Ministry. However, the lack of systematic investments for years and the technological changes had caused big problems in the system, which led to privatization and, consequently, the introduction of competition in the Nigerian Telecommunication industry. The simplified agents structure who work in the Nigerian telecommunications industry is composed by telecommunications equipment providers, service providers who act as networks infrastructure integrators, carriers of network telephony or services (Internet, paging, trunking, TV, cable TV etc.), government and regulatory sectors, customers that influence the dynamics of the industry, universities and research centers. A deal of interaction has been observed between these agents, which create a networking dynamics, underpinned by cut-throat competition and innovation. The government regulatory agency, such as the Nigerian Communication Commission (NCC), has introduced standards orders for network operating companies and other service providers in the sector.

The nature of equipment and services deployed in the Telecom sector and competitive pressures require a great dose of intellectual capital development and management. In other words, the management of the intellectual capital of the organization has become increasingly important in the knowledge-based society today. Knowledge management is perceived by many as an effective strategy adopted by a learning organization in a business environment characterized by change, fierce competition and uncertainties[1].

Effective management of firm knowledge is believed to be linked with competitive advantage and is considered critical to the success of an organization. Managers have to focus their organizations on becoming learning organizations, implementing knowledge management strategies and measuring intellectual capital. For many years, owners of family businesses have passed their commercial knowledge to their children, craftsmen have taught their trade to apprentices; workers have shared and exchanged their ideas and knowledge on the job. Thus, knowledge has become one of the most highly valued commodities in the modern economy. The new paradigm is that within the organization knowledge must be shared in order for it to grow. Knowledge Management (KM) is an approach to achieving firm objectives by making the best use of knowledge, or "doing what is needed to get the most out of knowledge resources"[2]. Knowledge management is "the explicit and

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systematic management of vital knowledge–and its associated processes of creation, organization, diffusion, use and exploitation"[3]. In the modern economy, KM plays a key role and has been widely used by many firms as one of the most effective means of achieving success in the information age.

As gleaned from extant literature, there is evidence that extensive research have been undertaken by scholars in the area of knowledge management in advanced countries from different perspectives and its relationship with different dependent variables[4,5,6]. But empirical studies on knowledge management and its effects on firm performance in the Nigerian context is relatively sparse. Therefore, there is need to narrow this gap through more empirical efforts into the knowledge management phenomenon in the Nigerian business environment.

II. Statement of the Problem

The environment in which telecommunication companies operate and make decisions today is becoming more and more difficult to deal with and predict. Growing subscribers dissatisfaction with network service provision and attendant brand switching, the pressure for technology upgrade by NCC and competitive intensity within the industry, as well as drive for improved profitability are ever-abiding challenges for the Telecom sector in Nigeria. In addition, Telecom firms and departments within the organizations face decreased budgets and amplified pressures from top managers to improve performance in terms of profitability, growth, and risk. It has been argued that it takes new and superior knowledge to solve challenging firm concerns as old knowledge has been proved to be obsolete in dealing with them. A firm's inability to tackle increasing domain complexity, accelerating market volatility, intensified speed of responsiveness, and diminishing individual experience might among other things, be traceable to non-adoption of appropriate knowledge management strategies[2].

It is believed that by adopting knowledge management strategies, organizations can improve their capabilities of creating, managing, sharing and applying their knowledge, sharpen their business intelligence, enhance their managerial decisions efficiency and performance, and ultimately achieve better business performance[7]. This, therefore, tends to suggest that organizations can realize the full value of their knowledge assets only when they can effectively manage knowledge management processes or strategies. However, this phenomenon has not been clearly verified empirically in the Nigerian Telecommunication companies. It is against this background that this study is designed to examine the relationship between knowledge management strategies and the performance of Telecommunication companies in Port Harcourt

III. Objectives of the Study

The main purpose of this study was to determine the relationship between knowledge management strategies and firm performance in the Telecom sector in Port Harcourt. The specific objectives are as follows:
1. Examine the relationship between knowledge creation and firm performance in the Telecom industry in Port Harcourt;
2. Determine the relationship between knowledge storage and firm performance in the Telecom industry in Port Harcourt;
3. Evaluate the relationship between knowledge sharing and firm performance in the Telecom industry in Port Harcourt;
4. Establish the relationship between knowledge application and firm performance in the Telecom industry in Port Harcourt.

The Concept of Knowledge Management

It was not until the 1990s that Chief Executives started talking about KM. It is believed that KM has evolved out of an amalgamation of concepts borrowed from Artificial Intelligence (AI), Business Process Reengineering (BRP), Human Resource Management (HRM) and Firm Behavior (OB) fields[8]. The concept of knowledge is traditionally in the area of epistemology (the Philosophical study of the nature of knowledge and how it is created). However, more recently, computer science, cognitive psychology, information technology, social re-search and brain research have also contributed to this field[1]. Thus, knowledge management conceptualization reflects this multidisciplinary coloration.

Knowledge Management is a set of activities that lead an organization in acquiring knowledge both internally and externally[9]. This implies that knowledge management is the collection of strategies that govern the creation, dissemination, and utilization of knowledge in one form or another. Knowledge management can also be defined as the management of the flow of knowledge within the organization, and usage of knowledge in an effective and efficient manner for the long-term benefit of the organization[10]. There are other definitions of knowledge management but all the definitions are pointing to the various ways which knowledge can be created, disseminated, and utilized in the organization for the occurrence of a successful business performance.

It had been argued that there are basically two strategies for managing knowledge[11]; which were termed "codification"; and "Personalization." The former refers to the codification of knowledge and its storage in database where it can be accessed and used readily by anyone in the firm. While personalization of knowledge refers to the development of personal or individual tacit knowledge that emanates from insights, personal skill and intuition for solving problems, or challenges, dialogues, learning from past mistakes and constant practice. Knowledge management, therefore is part of organizational choice of actions that guides management to make the best decision which will enable them achieve their objectives at the right time, the right place, using the available resources.

Dimensions of Knowledge Management

The dimensions of knowledge management strategies are: knowledge creation, also known as knowledge generation; knowledge storage or preservation of knowledge; knowledge sharing or knowledge transfer; and knowledge application, also known as, knowledge utilization/knowledge implementation. In literature there are various other inclusive aspects of knowledge management strategies. These are: knowledge conversion; knowledge transfer and integration; knowledge refinement and re-use[12].

Knowledge Creation

This could be seen as organizations ability to create and acquire new knowledge. Knowledge creation is mostly about the continuous transfer, combination and conversion of the various dimensions of knowledge with the interaction, practice, and learning between people[13]. It is mainly about the creation of new knowledge through developing new ideas, the recognition of new patterns, the synthesis of separate disciplines as well as the development of new products and processes. Organizations need to acquire knowledge about suppliers, customers, new products and services, and also about their competitors within industry to generate new knowledge, new ideas and new strategies for process improvement, product improvement, customer improvement and also able to benchmark the performance in order to fight and compete in the business world. Generally, knowledge can be created through sources from organizations business partners such as customers and suppliers[14]. Knowledge creation can be seen from two aspects. There are:
(i) The creation of new knowledge from the application of existing ones, and
(ii) The improved usage of existing knowledge and more effective creation of new knowledge[15]. One way of creating this knowledge is through "the communities of practice", which can be formal groups; the web; messages and chat boards.

Knowledge Storage

Knowledge storage otherwise known as knowledge preservation could be seen as capturing and storing organizational knowledge in form of repository, which includes documents, reports and data bases that enables decision making. Specialized software tools are always available to organize these materials in an effective and usable manner. However, knowledge can also reside with experience managers which often have wealth of knowledge even if they are not found in the typical categories of knowledge workers. As the evolution of knowledge management is rapidly extending to the use of internet and digital revolution, knowledge storage supports a variety of information management in the organization, especially the hospitality services[16]. In fact the role of preservation of knowledge is a sine quo non to the development of any organization.

In the Telecommunication industry, preservation of information facilitates the knowledge creation and exchange processes, increasing the collaboration of the organization and their clients by combining special services and networking ambiguity. The ability to store information in a database to facilitate knowledge management is based on the character of the knowledge being preserved.

Knowledge Sharing

Knowledge sharing or knowledge exchange has been defined as the process of sharing and transfer of data from one person to another, from individuals to groups, or from one group to another group[17]. Knowledge exchange involves firm members who willingly contribute their knowledge from firm memory. Knowledge exchange relates to the understanding and information communication among team members from the different functions within the firm concerning customer requirement suppliers' capacities, competitors, and internal capabilities necessary for the development of new product(s). Therefore, organizations need to have a good process on knowledge sharing in order to make knowledge effective. When information is hoarded instead of exchanged, those in need of it may not be able to react in a timely manner. Exchanging knowledge intelligently has been proven to be a more effective way to manage any organization; government, or business[18].

Knowledge Application

The application of new knowledge as explained, entails the mechanism for an organization to store, retrieve, and access knowledge quickly and easily in order to allow for knowledge to be used to adjust strategic

location, solving new problems, and improving performance[15]. It is evident from a consensus of scholars that knowledge application enables practicing firms to use and make knowledge become more active and relevant for the organization to achieve its high performance[18,19,20].

Concept of Firm Performance

Firm performance is probably the most widely used dependent variable in management research literature today yet at the same time remains one of the most vague and loosely defined concepts. Firm performance is the concept of how an organization is in achieving its objectives. As asserted, a firm's performance is its actual output or result which is measured against its purpose of being or intended output[21]. A narrow definition of performance had been noted to center on the use of simple outcome-based financial indicators that are assumed to "reflect the fulfillment of the economic goals of the firm"[22]. They argue that the narrow performance concept of financial performance had dominated the management literature, and proposed a broader performance construct that would include both financial and operational indicators (e.g. new product, product quality; market share, customer satisfaction, etc. The performance outcomes in literature include (i) financial performance; (ii) product market performance (iii) shareholders returns.

In the financial performance category we have: profitability; returns on assets; returns on investments while the product market performance indicates market share, increased sales volume. Those elements in the shareholders return are: economic value added; total shareholders' equity, etc. Profitability, for example is often regarded as the ultimate performance indicator. But it is not the actual performance. The actual performance occurs with decisions and then the actions that follow the decisions (results). In an opinion sampled; firms have different goals relating to performance and efficiency measures[23]. This means that one simple indicator may not be sufficient to measure a broad array of firm or firms' performance. Therefore firm performance depends on the ratio of an output over an input. Meanwhile, performance measurement in the practical and theoretical spheres has attracted growing attention in recent years. In categorizing the different measures, we explain the typology offered by[24]. These authors broke down performance measurement into human resources, firm, financial, and market measures. The human resources category consists of studies that measures turnover; absenteeism and job satisfaction. Firm outcome or category includes measures of productivity, quality; innovation; and customer satisfaction (service). The financial outcomes /category include measures for returns on investment (ROI); returns on equity (ROE); profits; sales; market share; sales growth; and employee value. The last category of the measures for firm performance which consist of the financial outcome (sales growth) is the focus of our measure for firm's performance. This is relevant to the Telecom sector as their services in the final analysis are translated to revenue and profit which enables firms fulfill their financial obligations to various stakeholders.

Also, other measures like profitability, market share increase, customer satisfaction, etc., would require secondary/longitudinal data that could not be provided by employees that are the respondents to this study.

Empirical Review

Many empirical studies on knowledge management and firm performance have accumulated from various economic sectors across the globe lending credence to relevance of knowledge management in the ever-changing and competitive environment.

A study was carried out on the role of knowledge management strategies on firm context and performance in selected multinational companies in Malaysia using the descriptive survey approach[1]. The study revealed that knowledge management strategies (knowledge creation and knowledge sharing were associated with firm performance. Similarly, previous study in Singapore on knowledge management and firm performance among 278 SMEs revealed that the knowledge management facets of knowledge generation, knowledge sharing and knowledge application had a positive and a significant impact on firm performance[4]. Basically, in reducing the design cycle time, Lead time, cost, reducing time product-to-market and improving the quality of the product as well; as improvement in better customer service.

In the same vein, a study examined the influence of knowledge management on firm business processes and Employees in a private university in Abu Dhabi, United Arab Emirate[25]. The study adopted the survey research design whereby primary data were obtained from the use of the questionnaire method. It was found in the study that supporting knowledge discovery, knowledge capture, knowledge sharing and knowledge application through a corporate portal was positively associated with firm performance as expressed in fewer mistakes and coordination of different units' development efforts.

A study on knowledge management strategies and firm performance of the Mexican manufacturing sector utilizing cross-sectional survey of 235 companies indicated that KM dimensions of knowledge creation, knowledge capture, knowledge storage, knowledge sharing and knowledge application had positive and significant relationship with customer base, profitability and market share[5]. A survey on firm culture and knowledge management in SMEs in South Africa suggested that supportiveness, collaboration, learning and

leadership commitment significantly and positively correlated with knowledge acquisition and knowledge sharing which in turn affected firm performance through innovation[6].

Findings from previous research have also shown that the creation of new knowledge and firms performance correlate positively[26]. Knowledge created by the firm from outside sources and those created from within are not only stored as knowledge for the next generation business operation, but also provides valuable prospects for the strategies used in increasing sales (sales growth). This avenue provides solution to the problems encountered during daily business operations. Hence, knowledge creation help ensure the effective development of work activities by organizations. When organizations create knowledge from external sources, especially specialized knowledge, they are likely to increase their output relationship to accomplish the firm's objective (sales growth). This also means that knowledge creation in the organization will enable firms to continuously transform the administrative processes, information system, and structure into new innovation. This aligns well with the argument that creation of new knowledge is expected to strengthen organizations capabilities to innovate for an increasing in performance[27].

The application of new knowledge allows knowledge to be used to adjust strategic direction, solve new problems, and improve on sales performance[15]. Application of new knowledge either from training, competitors, or stakeholders, enables the employees to use firms' resources wisely, and with a minimum of waste. Information sourced from a firms competitor can be used to benchmark production costs and then re-deploy relevant knowledge, technology, and processes that are more likely to increase sales growth. As such firms that are able to apply their knowledge and information are likely to improve transformative capability and functionality, which in turn will foster an increase in sales (growth) performance.

Based on the empirical review, the hypotheses of the study are formulated thus:

Ho1: Knowledge creation is positively associated with sales growth in the telecommunication companies in Port Harcourt.

Ho2: Knowledge Storage is positively associated with sales growth in the telecommunication companies in Port Harcourt.

Ho3: Knowledge sharing is positively associated with sales growth in the telecommunication companies in Port Harcourt.

Ho4: Knowledge application is positively associated with sales growth in the telecommunication companies in Port Harcourt.

The above is captured in the operational framework below:
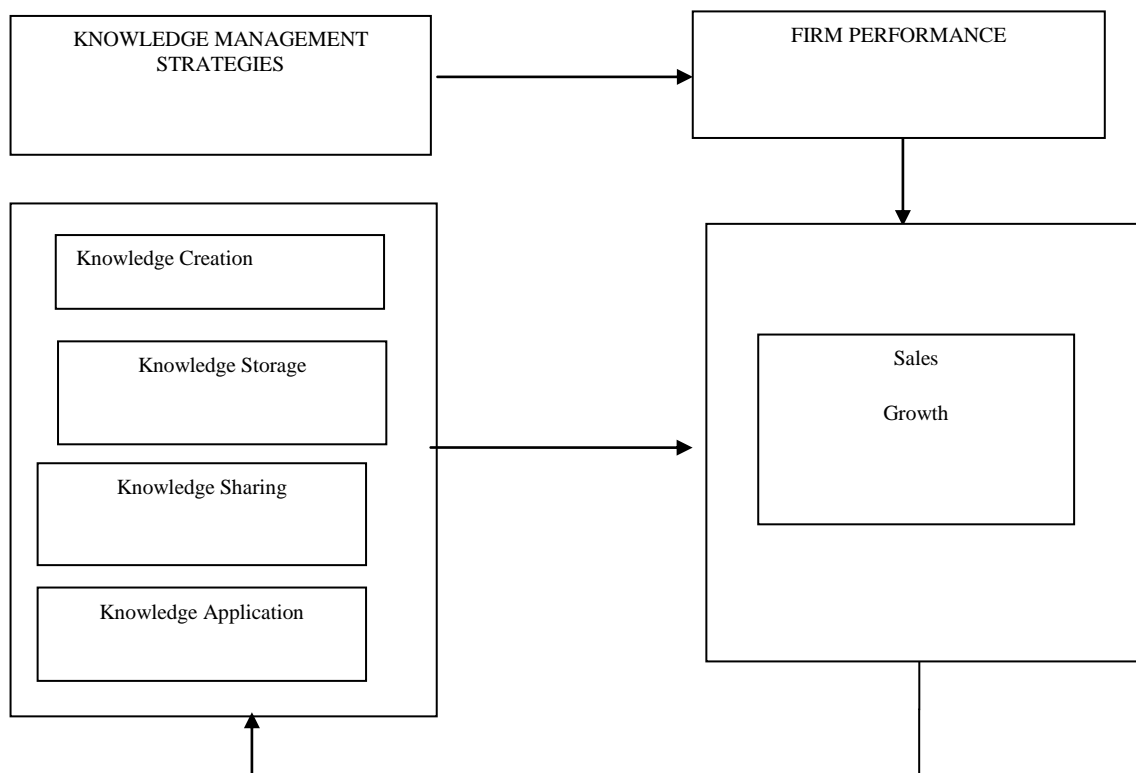
Fig 1: Researchers' Conceptualization of Linkage between Knowledge Management Strategies and FirmPerformance as modified from[12,28]

Theoretical Framework

Our theory of knowledge management is based on the "Knowledge System Engineering by[29,30] who indicated in this domain that knowledge management is composed of structures which can be seen as a network of systems.

These networks allow for nodes which can be documented, modeled, with the support of individual employees, teamwork, or the organization as a whole. These are the "engine room" for performing organizations. "The links are various connecting and coordinating mechanism, such as workflow procedures or knowledge flow procedures[30]. The nodes are conceived by many as a repository of stored knowledge, and knowledge creation. "Since the links represent the knowledge process, as information flows across the link, new knowledge is created both at the nodes and on the links, which can be then applied to meet the needs of the organization. It is the perspective of the Knowledge System Engineering that the node integrates the main components of information link to deliver on the functions of the system, which determines the structure.

These functions of the knowledge management strategies are: effective capturing and organizing knowledge; effective storage and protection of knowledge; knowledge sharing across the organization members; innovative practice; management of knowledge based capital; and the creation, reshaping and the maintenance of culture in the organization. It is indicative of the afore-stated process of managing knowledge in the organization that the building of our knowledge management framework maintains in its analyses: knowledge exchange; storage, creation and; application of new knowledge. These networks of nodes are necessarily applicable to building a functional structure of knowledge base asset in the system network.

The dogma of knowledge management strategic approach is in no doubt supportive of the function and structures of our study even as an application–oriented discipline of the organization. This is an integration of technology and human base approaches to acquiring; storage; dissemination; and the actual application of knowledge in any organization such the telecommunication sector.

IV. Methodology

Study Design: This study adopted the survey method design which involved operators in the telecommunication companies in Port Harcourt. This design was adopted because this study is exploratory in nature.

Study Population: The study's population consisted of 72 officials from the Human Resources, ICT, Marketing and Top Management units in the four (4) major Telecommunication companies (MTN, GLO, AIRTEL and 9Mobile) that provide GSM network services to subscribers in Port Harcourt.

Subject & Selection Method: Relevant staff who by virtue of their educational/occupational background, status and years of service in the organizations that could provide the needed data were selected via a purposive sampling technique.

Distribution & Retrieval of Study Instrument: Of a total of 72 questionnaires distributed, 8 (11%) of them were not returned, whereas 64 (89%) of the questionnaires were returned and analyzed.

Operational Measures of Variables: Construct measurements items were phrased according to a 5-point Likert scale. To evaluate the study's theoretical model, the questionnaire included 15 items that included the independent and dependent constructs. Knowledge management constructs were each assessed by four indicators or dimensions, namely; knowledge creation, knowledge storage, knowledge sharing and knowledge application while firm performance was assessed by one indicator or one criterion (sales growth). Firm performance was assessed using primary data provided through the responses obtained from relevant staff of the four telecommunication companies. We also measured sales growth as a means of respondent's ratings for his or her firm's performance relative to all other competitors in the industry

Data Analysis Techniques: The Spearman rank order correlation coefficient was used to test the strength of correlation (relationship) between the independent and dependent variables. The entire analyzed data done using the Statistical Package for Social Sciences (SPSS) at 95 percent confidence level or better.

V. Results

The hypotheses of this study were tested statistically in this section. The result of the statistical testing was used to either accept or reject the null hypothesis formulated at 0.05 level of significance.

Descriptive Analysis

Table 1: Knowledge Management Strategies

Items	First-Order Model	Second-Order Model
	Factor Loading	Factor Loading
Creation of New Knowledge (C.R = 0.75; AVE = 0.59; α=80)		

CNK1 We have recognized process to obtain knowledge about our competitors	0.87	0.84
CNK2 This firm has informed procedures for obtaining information for the development of new products and services	0.79	0.78
CNK3 We often times use feedback from previous services rendered to improve on subsequent ones	0.84	0.84
Knowledge Storage(C.R = 0.75; AVE = 0.59; α=87)		
KS1 Our Firm has the right hardware to serve its customers.	0.83	0.85
KS2 This firm has the right software to improve customers services	0.79	0.78
KS3 This firm has the right technical staff to furnish technical support for storage of customers' data.	0.76	0.73

It was observed that the factor loadings of the four dimensions of knowledge management strategies were greater than 0.50. The reliability coefficients of the dimensions were also way over the acceptable values. Also, the measurement model provided acceptable fit for the fit statistics, it could be inferred that the measurement model enhanced the convergent validity since both fit statistics and factor loadings were within the acceptable ranges.

The extent to which the dimensions represented (explained) the knowledge management strategies were calculated with the second-order confirmatory factor analysis. As a result of the analysis, the dimensions that explained the knowledge management strategies best were CNK (0.80), IT (0.87), KS (0.91), and ANK (88) respectively (Table 1).

Table 1 Cont.: Knowledge Management Strategies

Items	First-Order Model	Second-Order Model
	Factor Loading	Factor Loading
Knowledge Sharing (C.R = 0.75; AVE = 0.59; α=91)		
KS1 We encourage our employees to share knowledge.	0.88	0.85
KS2 Errors and failures are always discussed and analyzed in this firm, at all levels.	0.81	0.79
KS3 Our management have designed procedures that allows the facilitation of information transmission between the different functional areas	0.79	0.79
Application of New Knowledge (C.R = 0.75; AVE = 0.59; α=88)		
ANK1 We have processes of using knowledge to solve new problems.	0.84	0.85
ANK2 I have been applying knowledge learned from past mistakes and experiences for daily operations	0.82	0.83
ANK3 We are able to locate and link source of knowledge and apply to changing competitive conditions.	0.79	0.77

In the same vein, it was observed that the factor loadings of firms' performance was also greater than 0.50. The reliability coefficients of the dimensions were also over the acceptable values. It could be inferred that the measurement model enhanced the convergent validity since both fit statistics and factor loadings were within the acceptable ranges. The extent to which the dimension represented in this case sales growth (explained) the firm performance was calculated with the second-order confirmatory factor analysis. As a result of the analysis, the dimensions that explained the firm performance best was at (0.86), (Table 2).

Table 2: Firm Performance (Sales Growth)

Items	First-Order Model	Second-Order Model
	Factor Loading	Factor Loading
Sales Growth(C.R = 0.75; AVE = 0.59; α=80)		
SG1 The firm has been able to record an impressive number of sales for the first, second, and third quarter of this year respectively.	0.81	0.83
SG2 Our sales performance is increasing relative to target	0.72	0.75
SG3 The demand for our services keeps increasing annually.	0.87	0.86

Table 3: Correlations between Knowledge Management Strategies and Firm Performance

		1	2	3	4	5
Knowledge	Spearman's rho	1.000				
	Sig. (2-tailed)	.044				
	N	64				
Storage	Spearman's rho	.463**	1.000			
	Sig. (2-tailed)	.000	.038			
	N	64	64			
Exchange	Spearman's rho	.665**	.512**	1.000		
	Sig. (2-tailed)	.000	.000	.041		
	N	64	64	64		
Application	Spearman's rho	.301*	.663**	.287*	1.000	
	Sig. (2-tailed)	.001	.000	.000	.039	
	N	64	64	64	64	
Sales Growth	Spearman's rho	.955	.962	.965	.945	1.000
	Sig. (2-tailed)	.044	.038	.041	.039	.000**
	N	64	64	64	64	64

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

VI. Findings

The proposed relationship in hypothesis 1, showed the correlation coefficient (r = 0.955) between knowledge creations and sales growth is very strong and positive. The coefficient of determination ($r^2 = 0.91$) indicates that 91% of sales growth can be explained by knowledge creation. The significant value of 0.044 ($p < 0.05$) reveals a significant relationship. Based on that, the null hypothesis was rejected. Therefore, there is a significant relationship between knowledge creation and sales growth.

Hypothesis 2, showed the correlation coefficient (r = 0.962) between knowledge sharing and sales growth is very strong and positive. The coefficient of determination ($r^2 = 0.925$) indicated that 92.2% of sales growth can be explained by knowledge sharing. The significant value of 0.038 ($p < 0.05$) reveals a significant relationship. Based on that, the null hypothesis is rejected. Therefore, there is a significant relationship between knowledge sharing and sales growth.

Hypothesis 3, the correlation coefficient (r = 0.965) between exchange of new knowledge and sales growth is very strong and positive. The coefficient of determination ($r^2 = 0.93$) indicated that 93% of sales growth can be explained by exchange of new knowledge. The significant value of 0.041 ($p < 0.05$) reveals a significant relationship. Based on that, the null hypothesis is rejected. Therefore, there is a significant relationship between exchange of new knowledge and sales growth.

Hypothesis 4 the correlation coefficient (r = 0.945) between application of new knowledge and sales growth is very strong and positive. The coefficient of determination ($r^2 = 0.89$) indicated that 89% of sales growth can be explained by application of new knowledge. The significant value of 0.039 ($p < 0.05$) reveals a significant relationship. Based on that, the null hypothesis is rejected. Therefore, there is a significant relationship between application of new knowledge and sales growth.

VII. Discussion

This study investigated knowledge management strategies and firm performance in Telecommunication companies in Port Harcourt. The study confirmed that GSM telecommunication companies actually practiced knowledge management as expressed by such activities as knowledge creation, knowledge storage or preservations in their operations, knowledge sharing and knowledge applications. This is reflected by means score of 3 points. The KM strategies may have been informed by the changing and competitive nature of the business environment and the pressure to stay ahead of competition.

Hypothesis one was formulated to determine the relationship between creation of new knowledge and sales growth. The result shows that a strong and positive correlation occurred between creation of new knowledge (0.965) and sales growth, and a significant value of 0.041. Thus it was found that a significant relationship exists between creation of new knowledge and sales growth. This result is an alignment with previous argument by[27] who rightly said that the creation of new knowledge is expected to strengthen organizations capabilities to innovate for an increase in performance.

Hypothesis two was fashioned to ascertain the relationship between knowledge storage and sales growth. The finding shows a very strong correlation between knowledge storage (0.962) and sales growth, with a significant value of 0.038. It is indicative of these findings that preservation of information is related to high sales growth. This finding corroborates an earlier research by[16] when he posited that, the continuous expansion of storage facility in the management of knowledge in organization leads firm to enhance their performance by rapidly connecting customer knowledge about a wide range of their product offering/services to enhance their

sales growth. This is factual because telecom firms have deployed high database facilities in their operations as evident in wide range of innovative services in increase in subscriber base, sales increase and ultimately profit. The third hypothesis examined the relationship between knowledge sharing and sales growth. As the test result shows, a very strong and positive correlation was found to exist between knowledge exchange (0.955) and sales growth, and a significant value of 0.044. This means that there is a significant relationship between knowledge management and sales growth. This result is a reflection of a study which postulated that firms that effectively will garner better performance for their organizations. This, in turn will help to enhance sales growth of the firm[6]. Furthermore, timely knowledge sharing between the telecom network service providers and agents as well as customers, provides a feedback mechanism, which improves operations.

Hypothesis four was structured to find out the relationship between applications of new knowledge and sales growth. From the current finding shown in our analysis, a very strong and positive correlation was found to exist between application of new knowledge (0.945) and sales growth of telecom firms, with a significant value of 0.035 revealing a significant relationship. This also means that a significant relationship exists between application of new knowledge and sales growth. This is in line with a confirmatory study by[15] that information (knowledge) sourced from a firm's competitor can be used to benchmark production costs and then re-deployed relevant knowledge technology and processes that are more likely to increase sales growth.

VIII.   Conclusion

This study examined the relationship between knowledge management strategies and firm performance of Telecommunication companies in Port Harcourt. The study has established that telecommunication companies have recognized and practiced knowledge management as a strategy for improved firm performance. Environmental dynamics and competitive pressure have combined to make knowledge a part of the intellectual property of Telecommunication companies because it supports their growth, innovation and values.

Based on the findings of this study, it is concluded that creation of new knowledge gives the organization the flexibility to perform and enhance their sales growth and the adoption of appropriate storage of information database facilitates service operations and enhances sales growth. In the same vein, knowledge exchange equips the organization with the capacity to perform, and to enhance their sales growth, just as the application of new knowledge facilitates better decision making, reduces costs, and increase sales.

IX. Recommendations

Based on the above conclusions, the study recommends the following:
1. Telecommunication companies should constantly monitor the environment to identify areas where new knowledge is required so as to gain a competitive advantage.
2. Regular training of staff should not be ignored so as to update the knowledge of firm members.
3. Finally, Telecommunication companies should always invest in technology upgrade to improve the quality of their service for increased subscriber base for sustained growth.

Acknowledgments

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