

Knowledge Application and Organizational Sustainability of Oil and Gas Companies in Rivers State.

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ABSTRACT: This study examined the relationship between knowledge application and organizational sustainability of oil and gas companies in Rivers State. The study adopted a cross-sectional survey in its investigation of the variables. Primary data was generated through structured administered questionnaire. The population for this study was made up of the twenty-four registered indigenous oil servicing companies in Port Harcourt. Since the population is small, this study therefore adopts the entire population of 24 oil and gas companies in Rivers State as a census. Five (5) managers were selected from each of 24 oil and gas companies in Rivers State giving a total of 120 respondents. The reliability of the instrument was achieved by the use of the Cronbach Alpha coefficient with all the items scoring above 0.70. The hypotheses were tested using the Spearman's Rank Order Correlation Statistics while the partial correlation was used to test the moderating effect of organizational culture. The tests were carried out at a 0.05 significance level. The hypotheses were tested using the Spearman rank order correlation Coefficient. The tests were carried out at a 95% confidence interval and a 0.05 level of significance. The study findings revealed that there is a significant relationship between enterprise knowledge audit and organizational sustainability of oil and gas companies in Rivers State. The study concludes that when the investment in enterprise knowledge audit by oil and gas companies in Rivers State positively enhances organizational sustainability. The study recommends that management of oil and gas companies should ensure that knowledge delivery and analysis should be in sustainable environment within the organization.

KEYWORD: *Knowledge Application, Organizational Sustainability,*

I. INTRODUCTION

In recent times, the complexities and frequent changes experienced within the environment have necessitated managers to continuously strive for improvement in their product or service offerings (Coleman & Adim, 2018). Organizational sustainability appears to be the life-wire of every firm in the world. This is because; no business wants to go into extinction rather always wanted to remain in the apex of leadership. In the course of labeling and translating the meaning of this concept, Munck and Souza (2009) posit that sustainability is a state in which an organization or a society exhibits a relation to economic, environmental and social aspects. Wales (2013) viewed sustainability as being to "keep the business going". In this study, sustainability refers to the ability to maintain something very tangible and useful. According to Epstein and Buhovac (2011) it is the ability of any establishment to better comprehend the role of their host communities, customers, employees, stakeholders and proffer solutions to their respective needs which ensures better cooperation with the organization. According to O'Riordan in Economist Intelligent Unit (2008) sustainability is captured as the adoption of policies and processes that promotes the financial, environmental, societal, human and other resources on which the organization in question relies on for its long-term health. Hence, sustainability is perceived to reduce reputational risk and improve the organizations' product image and value. It is imperative that for organisations to be sustainable in today's knowledge economy, they must invest in knowledge application.

A process model of knowledge creation presupposes that individual and organizations create and enlarge knowledge through conversion of tacit knowledge into explicit knowledge and vice versa. Through knowledge conversion, the whole organization can share the explicit knowledge created and convert it into tacit knowledge for individuals Tseng (2010). Knowledge that is captured from various sources needs to be converted to organizational knowledge for effective utilization within the business (Lee & Suh, 2003). Knowledge application is the process through which knowledge is directly applied to task performance or problem solving. Knowledge may be possessed

and applied by individuals or by whole teams (Ajmal & Koskinen, 2008). Companies benefit not from the existence of knowledge but from its proper application (Alavi & Leidner, 2001; Gasik, 2011). Organizational routines, direct guidelines and instructions, and self-organizing teams constitute the main mechanisms that guarantee the application of knowledge (Grant, 1996; Gasik, 2011). Knowledge application may take different forms such as elaboration (when a different interpretation is required), infusion (finding underlying issues), or thoroughness (when different people or teams develop different understanding) (King, Chung and Haney, 2008).

The purpose of this paper therefore was to examine the relationship between knowledge application and organizational sustainability of oil and gas companies in Rivers State. The specific objectives were to:

- i. Examine the relationship between knowledge application and growth of oil and gas companies in Rivers State?
- ii. Examine the relationship between knowledge application and service quality of oil and gas companies in Rivers State?



Figure 1: Conceptual model for the relationship between knowledge application and organizational sustainability

Source: Desk Research (2022)

II. LITERATURE REVIEW

Theoretical Foundation

Knowledge Based View Theory

This theoretical concept is of the view that knowledge has a life cycle in terms of its applicability within an organization or at the external environment as professional knowledge. The focus of this study is on the use of knowledge for organizational for internal purposes. As an outgrowth of the resource-based view, the knowledge-based view focuses upon knowledge as the most strategically important of the firm's resource (Cheng, Wang & Qu, 2020). According to this view, its rationale is based on the fact that certain key decisions need to be made by the top management regarding the management of knowledge.

One decision is on the development of professional knowledge internally and modalities of doing it with an option of when it would be desirable to draw upon external expertise, and internal and external knowledge when jointly used through consultants. A third could be on how the internal knowledge can be marketed beyond organizational boundaries (Salina & Wan Fadzilah, 2010). This study focused on how the internal knowledge can be leveraged through the use of communities of practice and knowledge mapping, within a culture and structure that encourages knowledge sharing. Recent studies have pointed out the role of knowledge management (KM) and employees' knowledge sharing practices (Singh, 2019) in the enhancement of firm performance and the development of a firm's competitive advantage (Santoro, Bresciani & Giudic, 2019).

This view further proposes that the aforementioned decisions and others can only be effective if organizational members are accorded professional support in their day-to-day activities which include clarity of instructions, free flow of information, constant review and improvement of recurring tasks and transparent coordination techniques, (Salina & Wan Fadzilah, 2010). Furthermore, a study by Aminga (2015), recommends implementation of KM practices policy to improve institutional accountability and performance in public universities. Another study by Gichuhi (2014) also recommends the adoption of KM strategies to empower employees with techniques of creating and utilizing their knowledge. All these basic functions were aligned to the objectives of this study which were focused on combining management of employee core competencies

within a knowledge culture and supportive structures of communities of practices, knowledge mapping and organizational learning.

Knowledge Application

This process involves the usage of knowledge in adjusting the strategic direction, solving the problems, making decision, improving the efficiency and reducing costs (Markus, Majchrzak and Gasser, 2002; Orlikowski, 2002). The individual can make use of the knowledge possessed by other individuals without actually learning that knowledge (Hegazy&Ghorab, 2014). However, according to Ipe (2003) and (Landroquez, Gastro and Carrion, 2011) if the organizations want to capitalize the knowledge, they should know how the knowledge is created, disseminated and used as these processes are the basic for an effective organizational knowledge management.

Knowledge refers to an awareness and understanding of a set of information and ways that information can be made useful to support a specific task or reach a decision. On the other hand, knowledge is information put to productive use; it is personal and often intangible and it can be elusive-the task of tying it down, encoding it and distributing it is complex and challenging (Drucker, 1988, cited in Gabriel, 2012). The work of Stonehouse and Pemberton (1999) assert that knowledge is a shared collection of principles, facts, skills and rules. It can also be embodied into a firm's knowledge assets which consist of its core competence, technology, value-adding activities, processes, systems, procedures, structures, products and services. The study of Bell(1979) further describe knowledge as an organized set of facts or ideas, presenting a reasoned judgment or experimental result which is transmitted to others through some communication medium in some systematic form. Consequently, knowledge is an essential element of an organization's intellectual capital; intellectual capital refers to the stocks and flows of knowledge available to an organization. Knowledge application refers to an organization's timely response to technological change by utilizing the knowledge and technology generated into new products and processes. Knowledge application is when available knowledge is used to make decisions and perform tasks through direction and routines.

In this time of rapidly changing business environment, it is actually an era of communication and information technology, resources which are responsible for the emergence of intangible assets are becoming increasingly important. One of those important competitive resources in business is knowledge and related knowledge work (Abzari, Barzaki, and Abbasi, 2011). Teece (1998) regards knowledge and its application at the very roots of modern economic growth and prosperity. The increasing technological content of products with shorter life cycles and the more intense competition (Lichtenthaler, 2005) results in the need for precise research on the firm's resource knowledge and how firms can commercialize it in knowledge markets. In this study the knowledge utilization approach summarizes different ways of effectively using and commercializing various kinds of knowledge resources. The traditional knowledge utilization approach by Larsen (1980) contains a complex process involving political, organisational, socioeconomic, and attitudinal components in addition to the specific knowledge. Larsen (1980) proposed that knowledge utilization can be classified as conceptual and instrumental. The conceptual use refers to knowledge that has influenced the way users think about issues. The instrumental use of knowledge encompasses knowledge that has influenced action or behaviour or changing policy and procedures. Within this paper, knowledge utilization is extended by adding components of the knowledge management perspective like knowledge transfer between individuals and organizations. The knowledge management perspective helps to give a more general overview of knowledge utilization.

Concept of Organizational Sustainability

The concept of organizational sustainability has gained and attracted lots of attention in recent time, as companies or organisation with its stakeholders are turning their attention towards these critical issues of sustainability, that encompasses the economic, environmental and social dimension of sustainability. This concept according to Bhatia and Tuli (2016) is based on the Brundtland Report Published in 1987. Thus, it emphasized the need or importance of making progress towards economic development that could be sustained without diminishing natural resources or damaging and destroying the environment (Gallo & Christensen, 2014).

Bestman, Chinyere and Adebayo (2022) defined organizational sustainability as the ability of an organization to encourage and support growth over time by successfully meeting the expectations of various stakeholders. Zahid and Ghazali (2015) assert that sustainable development is a concept of organizational sustainability practices that assures and ensure long-term survival and financial success of a firm or corporation. Thus, as the balanced utilization of resources for ensuring better living and working at present by incorporating existing economic, social and environmental necessities without compromising with the needs of future generations (Ongisoh, The & Ng, 2016). Wilson (2003) posit that a review of literature suggests that

organizational sustainability concept borrowed elements from four more established concepts, namely sustainable development, corporate social responsibility, stakeholders' theory and corporate accountability theory.

However, Steger and Lonescus-Somer (2005) have defined organizational sustainability management as a profit driven corporate response to environmental and social issues that are caused through the organizations primary and secondary activities. Hence, from a broader business perspective, it is perceived as a business approach that creates long term shareholders value by embracing opportunities and managing risk derived from economic, environmental and social development (Dow Jones sustainability indexes, 2009).

Besides, organizational sustainability management could be described in terms of functional as well institutional terms. The functional perspective is designed to steer ecological, social and economic impacts of business activities in such a way that an enterprise develops in the direction of sustainability. With the aim of ensuring a systematic management of the triple bottom line, but also to integrate them in the conventional business management process. On the other hand, the institutional perspective describes the group of actors and organizational structure within the business enterprise that are concerned with the social and ecological aspects and their integration in the conventional process of operational management of business activities (Schaltegger, Herzig, Weiber& Muller, 2007).

Bansal (2005),Caroll and Shabana (2010) argued that key constructs for corporate social responsibility (CSR) and organizational sustainability have proliferated in the past decades, hence have added to management uncertainty. To Christofi, Christofi and Sisaye (2012) assert that organizational sustainability as a practice is the updated concept of corporate social responsibility (CSR) or sustainable development. Thus, organizational sustainability practice is a new thought which integrate the concept of economic, environmental and social contribution of the firm to ensure long-term financial success and survival of the organization or companies (Loannous&Serafein 2012, 2016, Lopattaet al., 2016).

According to San (2016) the notion of organizational sustainability practices implies to the way of living and working that meet and integrate the economic, environmental and social needs without destroying the betterment of the upcoming generations. In the same vein Nemli (2004) opined that organizational sustainability encompasses three dimensions of needs known as triple bottom line, economic prosperity and opportunity social equity and quality of life, ecological resource preservation. To this end, organizational sustainability can be attributed to an organizational commitment to achieving competitive advantage through the strategic adoption and development of ecologically and socially supportive production processes products and services and innovation human resource management practices.

Measures of Organizational Sustainability Growth

Organizational growth is, in fact, used as one indicator of effectiveness for small and large businesses and is a fundamental concern of many practicing managers. Organizational growth means different things to different organizations. Most companies will measure their growth in terms of net profit, revenue and other financial data (Caplow, 1983).The parameter chosen tend to influence amount of growth that is perceived. Weinzimmeret al. (1998), found that there is a significance relationship between determinants and organizational growth, as well as the amount of explained variance depend on the specific approaches used to measure growth. Companies have to grow in order to accommodate the increased expenses that develop over the years (Crosby, 1990). Most firms therefore desire growth in order to prosper, not just to survive. The growth and survival prospects of new firms will depend on their ability to learn about their environment and to link changes in their strategy choices to the changing configuration of that environment (Geroski, 1995). Van (2002) say that organizations appear in the market, survive, grow and eventually die, transferring their knowledge and information to surviving firms. In this sense, organization size reflects how the firm evolves and adapts to its environment. Weinzimmeret al.(1998) views growth as a derivative of another successful strategy which may be deliberately sought to facilitate the achieving of management goals and also make organization less vulnerable to environmental influences as larger organizations tend to be more stable and less likely to go out of business.

An organisations growth rate measures the percentage increase in the value of a variety of markets in which an organisation operates (Zack, 2009). An organisations growth rate can be achieved/improved on by boosting the organisations top line or revenue of the business with greater product sales or by increasing the bottom line or profitability of the operation by minimizing costs. Organisations are seen as living organisms and therefore, they possess same characteristics with living organisms. In other words, organisations also have life cycle, they are formed (born), grow to maturity, decline, and finally die of age.

Service Quality

Service quality can also be defined as the capacity to exceed customers' expectations (Berry *et al.* 1988) as far as the service company is concerned service quality is extremely important because it reflects an organization's capability to work effectively and also to brand themselves and hence customer satisfaction. Berry *et al.* (1988) & Parasuraman *et al.* (1988) argue that service quality is a perception resulting when customers compare their expectations to their perceptions of service received. Grönroos, (1994) suggested that service quality issue could be split into technical quality (what is done) and functional quality (how it is done).

Since service delivery occurs during the interactions between contact employees and customers, attitudes and behaviors of the contact employees can influence customers' perceptions of service quality (Schneider & Bowen, 1985). Additionally, Beatson, Lings & Gudergan (2008) found that perceived employee satisfaction, perceived employee loyalty, perceived employee commitment had an impact on perceived product quality and on perceived service quality. Providing high quality service is a key concern for organization. Oliver (1997) argues that customer satisfaction mostly depends on the quality of service offered. Perceived customer service can be identified only in terms of the provided service quality and the overall satisfaction of the customer's experiences (Zelthamlet *et al.*, 2006).

According to Zeithaml and Bitner (1996), contact employees represent the organization and can directly influence customer satisfaction, they perform the role of marketers. They can perform these functions well, to the organization's advantage, or poorly, to the organization's detriment. According to Bettencourt and Gwinner (1996) contact employees has the opportunity to tailor in real-time not only the services the firm offers, but also the way in which those services are delivered.

Service is largely intangible and is normally experienced simultaneously with the occurrence of production and consumption (Har, 2008). Service is often conceptualized as the interaction between the buyer and the seller that renders the service to customers (Gronroos, 1988). Service could also be viewed as any act or performance that one party can offer to another that is essentially intangible and does not result in the ownership of specific costs and risks (Kotler & Keller, 2006). Kotler, *et al.* (2006) described service as a form of product that consists of activities, benefits, or satisfactions offered for sale that are essentially intangible and do not result in the ownership of anything. In the words of Lovelock and Wright (2002) and cited by Nimako and Azumah (2009) services is an economic activities offered by one party to another, most commonly employing time-based performances to bring about desired results in recipients themselves or in objects or other assets for which purchasers have responsibilities. Services are also distinguished from goods because they possess some unique characteristics. Fisk *et al.*, 1993, (as cited in Hinson, 2006) suggest four service characteristics and these are intangibility, inseparability, heterogeneity and perishability.

Knowledge Application and Organisational Sustainability

Yusoff and Daudi (2010) using a 7-point Likert scale, correlation analysis and regression analysis concluded that knowledge application positively influences performance. However, the conclusion of the study cannot be generalised because of the low response rate of thirty eight percent. McKeen, Zack and Singh (2006) using a 5-point Likert scales, showed that there was a statically significant positive link between perceptions of high adoption of the KM practices and perceptions of high organizational performance. KM involves distinct but interdependent processes of knowledge creation, knowledge storage and retrieval, knowledge transfer, and knowledge application (Alavi & Leidner 2001). Glisby and Holden (2005) observed that organizations achieve breakthrough by applying KM concepts to supply chains. Fattahiyah, Hoveida, Siadat and Talebi (2013) revealed that organizational structure, knowledge acquisition, knowledge application and knowledge protection affect organizational performance.

H₀₁: There is no significant relationship knowledge application and growth of oil and gas companies in Rivers State.

H₀₂: There is no significant relationship knowledge application and service quality of oil and gas companies in Rivers State.

III. METHODOLOGY

The study adopted a cross-sectional survey in its investigation of the variables. Primary data was generated through structured administered questionnaire. The population for this study was made up of the twenty-four registered indigenous oil servicing companies in Port Harcourt. Since the population is small, this

study therefore adopts the entire population of 24 oil and gas companies in Rivers State as a census. Five (5) managers were selected from each of 24 oil and gas companies in Rivers State giving a total of 120 respondents. The reliability of the instrument was achieved by the use of the Cronbach Alpha coefficient with all the items scoring above 0.70. The hypotheses were tested using the Spearman's Rank Order Correlation Statistics while the partial correlation was used to test the moderating effect of organizational culture. The tests were carried out at a 0.05 significance level. The hypotheses were tested using the Spearman rank order correlation Coefficient. The tests were carried out at a 95% confidence interval and a 0.05 level of significance.

IV. DATA ANALYSIS AND RESULTS

Table 1 Correlations Matrix between Knowledge Application and Growth

			Knowledge Application	Growth
Spearman's rho	Knowledge Application	Correlation Coefficient	1.000	.678**
		Sig. (2-tailed)	.	.000
		N	103	103
	Growth	Correlation Coefficient	.678**	1.000
		Sig. (2-tailed)	.000	.
		N	103	103

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

Source: SPSS Output

H₀₁: There is no significant relationship knowledge application and growth of oil and gas companies in Rivers State.

The result of correlation matrix obtained between knowledge application and growth was shown in Table 2. The correlation coefficient of 0.678 confirms the direction and strength of this relationship. The coefficient represents a positive correlation between the variables. The test of significance shows that this relationship is significant at $p < 0.000 < 0.01$. Therefore, based on observed findings the null hypothesis earlier stated is hereby rejected and the alternate upheld. Thus, there is a significant relationship between knowledge application and growth of oil and gas companies in Rivers State

Table 2: Correlations Matrix between Knowledge Application and Growth

			Knowledge Application	Growth
Spearman's rho	Knowledge Application	Correlation Coefficient	1.000	.678**
		Sig. (2-tailed)	.	.000
		N	103	103
	Growth	Correlation Coefficient	.678**	1.000
		Sig. (2-tailed)	.000	.
		N	103	103

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

Source: SPSS Output

H₀₁: There is no significant relationship knowledge application and growth of oil and gas companies in Rivers State.

The result of correlation matrix obtained between knowledge application and growth was shown in Table 2. The correlation coefficient of 0.678 confirms the direction and strength of this relationship. The coefficient represents a positive correlation between the variables. The test of significance shows that this relationship is significant at $p < 0.000 < 0.01$. Therefore, based on observed findings the null hypothesis earlier stated is hereby rejected and the

alternate upheld. Thus, there is a significant relationship between knowledge application and growth of oil and gas companies in Rivers State.

Table 3: Correlations Matrix between Knowledge Application and Service Quality

			Knowledge Application	Service Quality
Spearman's rho	Knowledge Application	Correlation Coefficient	1.000	.763**
		Sig. (2-tailed)	.	.000
		N	103	103
	Service Quality	Correlation Coefficient	.763**	1.000
		Sig. (2-tailed)	.000	.
		N	103	103

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

Source: SPSS Output

H₀₂: There is no significant relationship between knowledge mapping and service quality of oil and gas companies in Rivers State.

The result of correlation matrix obtained between knowledge mapping and service quality was shown in Table 3. The correlation coefficient of 0.763 confirms the direction and strength of this relationship. The coefficient represents a positive correlation between the variables. The test of significance shows that this relationship is significant at $p < 0.000 < 0.01$. Therefore, based on observed findings the null hypothesis earlier stated is hereby rejected and the alternate upheld. Thus, there is a significant relationship between knowledge mapping and service quality of oil and gas companies in Rivers State.

V. DISCUSSION OF FINDINGS

The findings revealed that there is a significant relationship between knowledge application and organizational sustainability of oil and gas companies in Rivers State. These results reinforce knowledge management and business innovations are fundamental assets that increase the value of the company (Chilton & Bloodgood, 2010; Darroch, 2005). Our results show that knowledge management component generate superior innovation that allows the firm to improve its organizational performance. Results show that knowledge creation positively affects knowledge transfer and knowledge application. Knowledge creation enables the firm exploit new opportunities, moreover when this knowledge is transferred throughout the firm (Chilton & Bloodgood; 2010; Plessis, 2007; Yli-renkoet *al.*2001) and it also contributes positively to utilization of knowledge. Secondly, our findings show that knowledge transfer positively affects knowledge use. Managers could promote training of their employees in knowledge management systems to make easier the application of this knowledge on the firm, and making concepts and methods more valuable and understandable to members of organization and facilitate their dissemination.

Similarly, the study also agrees with the work of Chang and Ahn (2005) who conducted a study on knowledge utilization and innovation of products. The study found that utilization of knowledge within the firm positively affected performance. Thus, knowledge use rushes the “spiral of innovation” and guarantees better business performance. Darroch (2005) has provided empirical evidence that the effectively manage of knowledge makes firms be more innovative and with better perform. A positive relationship between innovation and performance is fairly well established in the extant literature (Chilton & Bloodgood, 2010; Darroch, 2005). Firm innovation capability is the most important determinant of product performance. Thus, we propose Hypothesis 6: Innovation will be positively related to organizational performance.

VI. CONCLUSION

Therefore, this study concludes that there is a positive significant relationship between enterprise knowledge audit and organizational sustainability of oil and gas companies in Rivers State. Furthermore, the study specifically concludes that enterprise knowledge audit on organizational sustainability of oil and gas companies in Rivers State with its dimensions; knowledge need analysis, knowledge inventory, knowledge application and knowledge mapping and organizational sustainability, with its measures; growth and service quality, of oil and gas companies in Rivers State.

The study recommends that management of oil and gas companies should evolve practical ways of creating knowledge by identifying employees who have relevant knowledge and tap some for the betterment of their organization, else, they will continue to be deprived of very important resource.

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