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KNOWLEDGE MANAGEMENT ON ORGANIZATIONAL PERFORMANCE: A MODERATING ROLE OF TECHNOLOGICAL INFRASTRUCTURE OF MULTINATIONAL CORPORATIONS IN NIGERIA

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ABSTRACT

This work examined the influence of knowledge management on organizational performance: A Moderating role of technological infrastructure of multinational corporations in Rivers State, Nigeria. The study revealed that knowledge management tools application such as social media tools application, video tools application, acquisition/preservation tools application n, and competence networks application influence measures of organizational performance such as improved production, improved market share, and client/shareholder satisfaction. The study concluded that increase in knowledge management tools application brings about corresponding improvements in the organizational performance of multinational corporations. Consequently, the study recommended among other things that all administrative offices should be equipped with functional state of the art desktop/laptop computer system, and other digital office resource to enhance the quality and speed of data processing across administrative offices.

INTRODUCTION

One of the major challenges faced by multinational corporations in Nigeria over the years appears to be corporate under-performance. For instance, some of the multinational corporations have not been able to improve their products and services by way of diversification and quality improvement (Uriarte, 2008; Akpan, Ibekwe, Worgu, & Nwangwu, 2018). Some of them have not been able to innovate better customer services and this led to downsizing customer base and low sales revenue. It has also been observed that across industries like Banking, Telecommunication, Oil and Gas, and Fast Food Movable Goods, some of the major players in the past have lost their competitive edge (Al-Shura, Zabadi, Abughazaleh, & Alhadi, 2018). Lack of improvement in product lines and downsizing market share makes it difficult for such multinational corporations to secure reasonable return for their shareholders.

While the poor performance of companies could be blamable on economic realities, the underperformance of many companies in Nigeria has been attributed to inadequate adoption of emerging knowledge management systems (Ozoigbo & Chukuezi, 2011; Agwamba, Onwudiwe, & Ugwuegbu, 2019). Although knowledge management tools like social media tools, video tools, intranet, and communities of practices have existed in many multinational corporations in Nigeria, the level of their adoption has been very low. There appears to be very little deliberate efforts towards employing these tools in the capturing, storage, sharing, and use of implicit and explicit knowledge resources.

The importance of organizational performance and knowledge management tools has spurred various research efforts within and outside Nigeria. For instance, Rašula, Vukšić, and Štemberger, (2012) examined the impact of knowledge management on organisational

performance and it was found that knowledge management practices enhance organizational performance. Suryaningrum (2012) examined knowledge management and performance of small and medium entities in Indonesia. The study revealed that organizational learning and competitive strategy have positive correlation with knowledge management. In another study, Meihami and Meihami (2014) examined knowledge management as a way to gain a competitive advantage in manufacturing companies. The study revealed that the adoption of knowledge management enhances organizational performance, customer-oriented and product innovation. Ezinma, Ebele, and Henry (2015) investigated knowledge management and organizational performance in selected commercial banks in Awka, Anambra State, Nigeria; the study equally showed that knowledge management enhances corporate performance of Deposit Money Banks in Akwa, Anambra State, Nigeria. Bagiwa (2016) examined how knowledge management tools such as cloud storage, cloud computing Microsoft, and cloud architect influence organizational performance and it was found that cloud services enhance organizational performance.

In another case, Nada, Rusinah, Ibrahim, and Mahmoud (2016) examined the impact of information technology infrastructure on innovation performance in private Universities In Iraq. The study revealed that information technology infrastructures are positively correlated with innovation performance. Akpan, Ibekwe, Worgu, and Nwangwu (2018) examined the relationship between social media usage and firm performance in Nigerian Telecommunication Sector and it was found that a significant positive correlation exists between social media tools usage and the performance of Telecommunication firms in Nigeria. The weakness of this study is that it did not cover most of the prominent Telecommunication firms in Nigeria. Another study examining the role of knowledge management process and intellectual capital as intermediary variables between knowledge management infrastructure and organizational performance by Shadi, Ra'ed, Khaled, and Ala'aldin (2018) revealed that knowledge management infrastructure enhances organizational performance when the right intellectual capital is in place. This study amplifies the importance of communities of practices in successful knowledge management processes. Agwamba, Onwudiwe, and Ugwuegbu (2019) theoretically examined the relationship between knowledge management and organizational innovation and it was found that knowledge management gives birth to organizational innovation and better performance.

While it is evident that the studies cited above showed how knowledge management practices has enhanced organizational performance in Anambra State in Nigeria and other countries of the world, none of these studies was done in Rivers State, Nigeria and within the context of multinational corporations. Another issue of knowledge gap necessitating this study is that none of the studies reviewed examined how knowledge management tools such as video tools, intranet, shared database, competence network influence organizational performance of multinational corporations. There is need therefore, to carry out this study.

Concept of Knowledge Management Tools Application

Knowledge management is essentially about getting the right knowledge to the right person at the right time. This in itself may not seem so complex, but it implies a strong tie to corporate strategy, understanding of where and in what forms knowledge exists, creating

processes that span organizational functions, and ensuring that initiatives are accepted and supported by organizational members (Emil, 2018). Alan (2012) stated that knowledge management entails a systematic management of an organization's knowledge assets for the purpose of creating value and meeting tactical and strategic requirements; it consists of the initiatives, process, strategies and systems that sustain and enhance the storage, assessment, sharing, retirement, and creation of knowledge. It is also a conscious effort to get the right knowledge to the right people at the right time so that it can be shared and put into action (Aziri, Veseli, & Ibraimi in Ezinma, Ebele, & Henry, 2015). Furthermore, Sveiby (2014) defined knowledge management as the art of creating value from an organization's intangible assets. Davenport, Thomas and Prusak (2005) defined knowledge management as concerned with the exploitation and development of the knowledge assets of an organization with a view to furthering the knowledge objectives. The above denotes that the purpose of knowledge management is to enhance organizational performance by explicitly designing and implementing tools, processes, systems, structures, and cultures to improve the creation, sharing, and use of different types of knowledge that are critical for decision-making.

Knowledge management tools (KMTs) are systems organizations use in sharing information internally and externally (Lewis, 2015). They are platforms, kits, devices and arrangements used in creating value and meeting tactical & strategic requirements of an organization, through initiating, processing, strategizing, systematizing and sustaining knowledge. These tools enhance organizations' storage, assessment, sharing, refinement, and creation of knowledge. It also helps in attaining predetermined goals and objectives of the organization. Apparently, in today's competitive business world, knowledge management must create/provide the right tools, people, knowledge, structures (teams), culture, etc. so as to enhance learning; it must understand the value and applications of the new knowledge created; it must store this knowledge and make it readily available for the right people at the right time; and it must continuously assess, apply, refine, and remove organizational knowledge in conjunction with concrete long and short-term factors (Emil, 2018).

More so, knowledge management practitioners use a wide range of information technology (IT) tools to share, create, codify, and share knowledge. The trend in the development of information technology for organizations is toward more communication and collaboration tools (Syed, 2009). The tools for knowledge management are focused on assimilation, comprehension and learning of the information by individuals who then transform data and information into knowledge. Knowledge is strictly linked and connected to the individual (or group) who creates it, which may cast doubts on the availability of information systems tools to effectively support knowledge management. Thus the visible part of knowledge, what the literature calls explicit as opposed to the tacit dimension of knowledge, is only information regardless of the amount of the other individual knowledge embedded into it (Firestone & McElroy, 2003). Therefore, there is requirement of knowledge management tools, which can collect, catalogue, organize, and share knowledge or transfer information (the explicit knowledge) embedded in various forms and types of documents and media. According to Miller (2005), these reasons are:

1. Facilitate information contextualization: To facilitate information contextualization, metadata on its characteristics and integration within a specific environment must

be attached to it before storing. This facilitates better retrieval and management for the knowledge seeker.
2. Intelligently transfer information: Information transfer must occur by taking into account the user, the content, and the time of transfer. A tool that can optimize these three aspects can truly provide information according to the needs of the users, respecting one of the key functional foundations of knowledge management.
3. Facilitate social interactions and networking: Direct communication and verbal knowledge transfer through social interactions among individuals is the most natural aspect of knowledge sharing. A knowledge management tool supports this social aspect and facilitates searching.
4. Present a customized human-computer interface: The tools also support interface customization and ease of use. The human-computer interface, ease of use and usability will drive intention to use and reuse the tools.

According to Garba (2015), knowledge management tools help organizations to effectuate their mission, goals and objectives. Without these tools, managing knowledge in the organization would be nebulous. These tools are essential to the management of all knowledge (knowledge psychology, declarative knowledge, explicit knowledge, tacit knowledge, individual knowledge and collective knowledge) in the life of the organization.

Concept of Organizational Performance

The concept of performance has gained increasing attention in recent decades, being pervasive in almost all spheres of the human activity. Performance is a subjective perception of reality, which explains the multitude of critical reflections on the concept and its measuring instruments. The multitude of studies at international level in the field of performance is due to the financial crisis that swept the economy globally, which has led to a continuing need of improvement in the area of performance of organizations (Ion & Criveanu, 2016). According to Hashem (2015), organizations perform various activities to accomplish their organizational objectives. It is these repeatable activities that utilize processes for the organization to be successful that must be quantified in order to ascertain the level of performance and for management to make informed decisions on where, if needed within the processes to initiate actions to improve performance. Therefore, it can be claimed that there is a close relationship between the organizational objective and the concept of organizational performance. Therefore, all companies probably attempt to achieve certain pre-determined objectives with the help of available resources. Hence, the two aspects of the concept, i.e., the organizational objective, and the organizational inputs or resources can be considered in the definition of organizational performance.

Didier (2002) believes that the performance consists in ”achieving the goals that were given to you in convergence of enterprise orientations”. In his opinion, performance is not a mere finding of an outcome, but rather it is the result of a comparison between the outcome and the objective. Unlike other authors, Didier considers that this concept is actually a comparison of the outcome and the objective. The author’s definition is far from clear, as both outcomes and objectives vary, most often, from one field of activity to another. Most recently, there are a variety of definitions attributed to the concept of performance due to its subjective nature. In the literature there are many articles or studies that define organizational performance closely related to environmental factors. Nevertheless, the

researcher took cognizance of some authors' definition of organizational performance that have ties with the measures understudy.

Michel cited in Ion and Criveanu (2016) characterizes the performance as future-oriented, designed to reflect particularities of each organization/individual and is based on a causal model linking components and products. He defines a ″successful″ business as one that will achieve the goals set by the management coalition, not necessarily one that achieved them. Thus, performance is dependent as much of capability and future. Unlike other authors, Michel Lebas noted the difference between ″a performance″, ″performance″ and ″being performant″. ″A performance″ is subject generally to a measured result, higher than that provided for or arising from the previous results. ″A performance″ thus indicates always a positive connotation. ″Performance″ can be both positive and negative and relates to past results. Patently, organizational performance is not an objective reality, waiting somewhere to be measured and assessed, but a socially constructed reality that exists in people's minds, if it exists somewhere. Organizational performance may include: components, products, consequences, impact and can also be linked to economy, efficiency, effectiveness, cost effectiveness or equity.

In the research of performance in business, the definition of performance has led Folan, Browne and Jagdev (2007) to highlight three priorities or objectives of governance of performance:

1. Performance should be analysed by each entity within the limits of the environment in which they decide to operate. For example, a company's performance needs to be analysed in the markets in which it operates and not those that are not relevant to its operations.
2. Performance is always linked to one or several objectives set by the entity whose performance is analysed. Therefore, a company measures its performance against objectives and targets established and accepted internally rather than on those used by external bodies.
3. Performance is reduced to the relevant and recognizable features.

Undoubtedly, Folan's theory of performance is influenced by the environment, the objectives to be achieved and the relevantly recognizable features.

Hitherto, it can be claimed that organizational is a progressive and steady movement towards the achievement of the set objectives. Observation of organizational performance is not only on the past performance, but it also concentrates on the realization of collective aspirations and the assurance of a future performance.

Organizational performance is also considered as a metric employed to measure performance. Therefore, it can be regarded as an analytical tool that records measures, shows outcomes, and determines subsequent actions in the process of the organizational performance (Jenatabadi, 2014). Overall, Man (2006) determined that measures of performance are divided into four categories, i.e., financial; non-financial; tangible like quality or intangible like experience. The focal point of financial performance measures is generally on the resulting impact on production activities and financial characteristics, such as logistics activities. Non-financial performance values, however, have their focal point directly on actual production activities, such as defect ration, investment turnover, and lead time.

Socio-Technical Theory

This theory was originated by to Eric Trist, Ken Bamforth and Fred Emery, during the World War II era, based on their work with workers in English coal mines at the Tavistock Institute in London. The socio-technical theory is made up of two main constructs joined together:

1. Socio: It has to do with people and society
2. Technical: It has to do with machines and technology.

Thus, the socio-technical refers to the interrelatedness of social and technical aspects of an organization. The socio-technical theory is founded on two cardinal assumptions:

1. The interaction of social and technical factors creates the conditions for successful (or unsuccessful) system performance" (Walker, Spear, Gould, & Lee, 2016). These interactions are comprised partly of linear 'cause and effect' relationships, the relationships that are normally 'designed', and partly from 'non-linear', complex, even unpredictable relationships, which are those that are often unexpected.
2. The second major principle of socio-technical theory is that "optimization of either socio, or far more commonly the technical, tends to increase not only the quantity of unpredictable, 'un-designed', non-linear relationships, but those relationships that are actually injurious to the system's performance" (Walker, et al., 2016). Thus, second principle of socio-technical theory hinges on joint optimization. This second principle holds that improving only one aspect of the organization (e.g. workforce) and abandoning the other element (technical computer systems, and other knowledge management infrastructure) will be detrimental to the system. Both the human and technological resources of an organization must be optimized simultaneously for expected results to be achieved. The implication of the joint optimization principle of socio-technical theory in multinational companies is that continuous capacity building to increase workers' awareness of how to use knowledge management tools may not lead to organizational performance in the workplace except it is matched with an upgrade of sophisticated knowledge management systems. In this jet age, where knowledge is the life blood of any organization; a multinational company may not be able to outperform its competitors if its knowledge management tools are not properly harnessed and shared within the horizon of the organization.

The socio-technical theory holds that business organizations are made up of human beings working together in social groups using equipment, tools, methodologies and knowledge to achieve desirable changes in the system and to bring about the achievement of corporate goals as well as outperforming competitors (Walker, et al, 2016). This theory holds that changes in organizations and the capacity of organizations to compete favourably in the market are influenced by demands from the external environment which impacts information systems changes in an organization. The socio-technical theory describes how societal changes provoke or necessitates changes in the techniques, procedures, infrastructure and technologies used in organizations (Jon & Randy, 2009). Multinational companies more than ever are being confronted with ardent competition from sister companies especially in the developing countries and as a way of coping and outperforming their competitors, they has to adopt knowledge management tools such as social media tools, video tools, acquisition/preservation tools and competence networks to exploit and maximize the organizational performance (improved production, improved market share and effective client/shareholder satisfaction).

The justification of the socio-technical theory as the theoretical foundation of this study is based on the fact that the theory talks about how the interaction between people and modern socio-technical tools affects organizational performance. It is therefore reasonable to adopt a theory such as this since the work is aimed at getting empirical evidence on how knowledge management tools interact with organizational performance.

Systems Theory

Systems theory focuses on the relationships between parts and the properties of a whole, rather than reducing a whole to its parts and studying their individual properties. A system is defined as "an entity which maintains its existence through the mutual interaction of its parts (von Bertalanffy in Chun, Sohn, Arling, & Granados, 2008). Systems theory provides a framework by which groups of elements and their properties may be studied jointly in order to understand outcomes. A system is composed of at least two elements and a relation that holds between them. At any given time, a system or one of its elements exhibits a state, defined as its relevant properties, values or characteristics. A change in the state of a system is called an event. In more common terms, an event is an occurrence, something that happens. There is an important classification of events called behaviors. Behaviors are events that initiate other events. For example, claiming many deductions on your tax form is a behavior because it is likely to cause another event, a tax audit. A process is a sequence of behaviors that constitutes a system and has a goal producing function. In a process, each behavior brings the system closer to its goal, although goals are not always reached and are sometimes accompanied by other unintended goals. Viewing and interpreting processes from this holistic viewpoint and over time is the essence of the systemic approach to analysis (Angell, 1990). A system's environment consists of the elements and their relevant properties that are not part of the system, but a change in any of which can produce a change in the system. Systems that interact with their environment are called open systems. Open systems exchange information, energy or material with their environments. Systems that do not interact with their environment or that have no environment are called closed systems. A dynamic system is one to which events occur and whose state changes over time. If the elements within a dynamic system only change in response to each other, it is a closed dynamic system. If the elements respond to the environment, it is an open dynamic system. One of the building blocks of many dynamic systems is the reinforcing process. Reinforcing processes compound change in one direction with even more change in the same direction and thus they can cause either growth or decline (Anderson and Johnson in Chun et al, 2008). An example of a reinforcing process is the relationship between principle and interest in a bank account. When an interest rate is applied to principle, it increases the interest earned. The interest earned is then added to the principle, causing it to increase. Due to their ability to greatly compound growth or decline, reinforcing processes are also known as vicious cycles. Systems thinking are derived from systems theory and are the basis for the learning organization. Systems thinking focus on causes, rather than events and do not isolate the smaller parts of the system being studied. Rather, it considers the numerous interactions of the system in question. In relation to knowledge, an important concept in systems thinking is generative learning. Generative learning is the process of leveraging, integrating and customizing existing knowledge to suit the needs of a new application or a new user. Generative learning enables innovative approaches to new problems rather than mere reactionary and often ill-suited re-application of old ideas to new problems. A systems theory approach to KM recognizes that each time

one of the key knowledge processes is enacted there may be a ripple effect of events and behaviors that may change the state of other sub-systems. Events may be part of reinforcing processes that lead to the growth or decline of either desirable or undesirable outcomes. Each knowledge process may lead to reactionary solutions or true generative learning.

CONCLUSIONS

Every multinational corporation aims at continuously optimizing its business performance. One of the deliberate ways multinational corporations maximize this, is by embracing knowledge management tools application. The application of knowledge management tools such as social media tools, video tools, collaborative tools, and competence networks enhances operational processes and ultimately organizational performance of multinational corporations. Specifically, knowledge management tools application makes managerial procedures and service delivery processes a lot easier because it makes relevant information and knowledge available to intended users in real time thereby enhancing organizational performance in terms of improved production, improved market share, and client/stakeholders' satisfaction. The study therefore concluded that increase in knowledge management tools application brings about corresponding improvements in the organizational performance of multinational corporations. The study also concluded that multinational corporations who fail to continuously embrace knowledge management tools application may not perform considerably in terms of production, market share, and client/stakeholders' satisfaction.

RECOMMENDATIONS

Based on the conclusions, the following recommendations were made:

1. Management should provide mifis and routers across administrative offices to enhance access to internet resources such as e-mail, internet browsers, and social networking platforms. This will enhance staff's ability to create, send and access administrative data and information on time. This will also improve the quality of information shared in the system as well as effective collaboration among sub-systems of the institutions.
2. All administrative offices should be equipped with functional state of the art desktop/laptop computer system, and other digital office resource to enhance the quality and speed of data processing across administrative offices.
3. Management should provide functional central database management system, intranet, and corporate website to enhance the quality and speed of information sharing in the administrative system. A shared database management system will also enhance meaningful collaboration and interaction among individuals and various units of tertiary institutions.
4. Management should adopt cloud computing services that will enhance the processing as well as secure access to special purpose data/information across the institutions. Tertiary institutions should adopt cloub-based result computation systems, turn-it-in, and e-examination system to enhance information contents, information sharing speed, and collaboration.
5. Employees should engage in voice texting and internet calls to enhance their communication processes.

6. Management should procure state of the art web conferencing facilities to enhance the ability of decision managers to hold virtual meetings irrespective of their geographical dispersion. This will promote information dissemination and effective collaboration.
7. Management should provice regular hands-on computer training across all levels of the organizations to improve the digital communication competencies (skills) of workers. Administrative heads and administrative assistants should also undertake self-development efforts to improve their digital literacy level.

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