Global Scientific JOURNALS

GSJ: Volume 6, Issue 11, November 2018, Online: ISSN 2320-9186

www.globalscientificjournal.com

KNOWLEDGE MANAGEMENT, ORGANIZATIONAL CHARACTERISTICS AND ORGANIZATIONAL PERFORMANCE OF COMPANIES LISTED AT THE NAIROBI SECURITIES EXCHANGE

Teresa Wangui Wambugu, Peter K'Obonyo, Martin Ogutu, James Kariuki

Teresa Wangui Wambugu is currently pursuing a PhD degree in Business Administration at the University of Nairobi Kenya, teresawangui@gmail.com
Professor Peter KÓbonyo is currently the Deputy Principal in the College of Humanities and Social studies University of Nairobi
Professor Martin Ogutu is currently the PhD program coordinator at the University of Nairobi
Dr. James Kariuki is currently a Lecturer at the University of Nairobi

Key Words
Knowledge Management, Organizational Characteristics, Moderation, Organizational Performance, Publicly quoted Companies

ABSTRACT

This study conceptualizes relationships among knowledge management, organizational characteristics and organizational performance. There is consensus in management literature linking knowledge management with sustained organizational performance. However there are some mixed findings of the linkage between knowledge management, and organizational performance and the acknowledgement that knowledge management is a critical necessity for all organizational operations. The study's specific objectives were; to examine the relationship between knowledge management, and organizational performance and to establish the moderating role of organizational characteristics on the relationship between knowledge management and organizational performance. Through a cross-sectional survey, data was obtained using a structured questionnaire from companies listed on the Nairobi Securities Exchange in Kenya. PLS-SEM analysis findings indicate a statistically significant direct relationship between knowledge management and organizational performance. Organizational characteristics' moderation effect on the relationship between knowledge management and organizational performance was found to be negative but statistically insignificant. However the direct relationship between organizational characteristics and performance was found to be positive and statistically significant.

The first page should be used only for Title/ Keyword/ Abstract section. The main paper will start from second page.

1. INTRODUCTION

1.1. BACKGROUND

Superior organizational performance is the ultimate objective of managers in any organization. Competitive advantage is appreciated as an antecedent to superior organizational performance (Ray, Barney and Muhanna, 2004). In accordance to Resource Based View (RBV), competitive advantage can only be realized when organizations understand and gainfully employ their internal resources (Barney, 1991). These comprise all organizational capabilities, processes, organizational factors, information and knowledge that an organization owns or controls. Knowledge is perceived as the main national and organizational resource (Bhatti, Khan, Ahmad, Hussain and Rehma, 2011). Zack (1999), posits that knowledge has become the fundamental basis of competition. However for knowledge to translate into strategic advantage it has to be managed.

The advancement and practice of knowledge management (KM) is incessantly and strongly increasing in organizations. As a consequence of developments in KM, the contest in search of sustainable competitive advantage via knowledge continues to intensify at a rapid speed (Hofer-Alfeis, 2003). Knowledge management involves the management of the knowledge base of an organization. Zeleny, Comet and Stoner, (1990) posit that an organization's knowledge base consists of brainware (human experience, skills and acquired knowledge) and hardware which are made up of procedures, technology and other physical objects that incorporate knowledge. In addition it includes groupware which comprises informal processes, rules of thumb, stories and unrecorded codes of behaviour. It also consist of document ware which comprises of all organizational documents contained in the information systems such as databanks, recorded reports, handbooks, patents and formally documented knowledge.

Organizational characteristics can be regarded as the organizations' subsystems that are within the control of the organization and have an effect on the achievement of organizational goals. They are distinguished from environmental elements external to the organization that also influence organizational performance but are not controlled by the organization (Morton, 1995). Keen, (1993) describes organizational characteristics as organizational resources which include human, business and technology resources. For purposes of this study, structure, organizational culture, human capital and IT infrastructure have been used. These were chosen because they have been depicted as knowledge management enablers or knowledge management infrastructure, which is crucial for management of knowledge (Lee and Choi 2003, Gray and Durcikova 2005).

1.1.1 Knowledge Management and Publicly Quoted Companies

Publicly quoted companies are representative of the overall companies in most countries. An assessment of the performance of these companies is expected to be indicative of the country's economic status. Hence a large group of stakeholders in the publicly quoted companies are interested in the performance of these companies and in the measures that can be taken to improve their performance. According to Fraihat and Samadi (2017), most studies on publicly quoted companies have concentrated on structure, capital and other broad characteristics of the said companies. In addition, many of these studies employed the use of secondary data. As such the role of Knowledge management in the performance of publicly listed companies has not been adequately determined.

Gold, Malhotra and Segars (2001), posit that knowledge management capability improves organizational effectiveness. Fraihat and Samadi (2017) conducted a conceptual study on knowledge management capabilities and performance of publicly quoted companies and

formulated a conceptual framework which proposed that knowledge management could affect the performance of publicly quoted organizations. The extant study improves on the aforementioned conceptual study by carrying out an empirical study on the relationship between knowledge management and performance of organizations listed on the Nairobi Securities Exchange.

A study by Maasoumabad and Norouzi (2015) indicate that knowledge management had a direct and significant impact on improved performance in the motor vehicle manufacturing firms listed on the Tehran Stock Exchange. In Kenya, Osano (2006), found that 59% of the companies listed in the Nairobi Securities Exchange (NSE) had a knowledge management strategy, most of the others were in the process of adopting one. However over 40% of the companies had a knowledge management strategy by default and were not consciously making use of it. A majority of workers in these companies were not familiar with the concept of knowledge management. Over ten years later, the extant study set out to determine the status of knowledge management of companies listed in the NSE, particularly focusing on the relationship between knowledge management, organizational characteristics and organizational performance.

1.2 Research Objective

i. To determine the influence of knowledge management on organizational performance in companies listed in the Nairobi Securities exchange.

ii. To establish the moderating influence of organizational characteristics on the relationship between knowledge management and organizational performance in companies listed in the Nairobi Securities exchange

1.3 Methodology

1.3.1 Research Design

This study used a cross sectional survey research design. This entailed collecting of data from the population of study during a period of time and drawing deductions from this data. According to (Cooper and Schindler (2008), a cross-sectional survey is used to collect data from a selected population. This data is used to explain an existing phenomenon through enquiry on the respondent's views, behaviours, attitudes, or ideals. The cross sectional survey was chosen for this study because it involves collecting data at one time from all the firms listed at the NSE by the end of 2015. The design offered the researcher an opportunity to capture population characteristics and test hypotheses quantitatively and qualitatively.

1.3.2 Study Population

The extant study's 'population involved all organizations that were listed on the Nairobi NSE which stood at 61 in number by the end of 2015. Therefore this study applied a census approach. This is because the organizations listed at the NSE were too few to qualify for a sample extraction. According to Bartlett, Kotrlik and Higgins (2001), the minimum suitable population for sampling is 100 elements. The firms listed on the NSE were chosen because they cut across all sectors of the economy namely, agriculture, vehicles and fittings, banking, commercial and services, building and allied, energy and petroleum, insurance, industrial and allied, telecommunication and technology, and growth enterprise market. Cabrita and Bontis (2008) recommended that a suitable population should offer the advantage of comparison of companies within the same industry and across different industries, therefore companies listed on the NSE listed are appropriate.

1.3.3 Data Collection

This study made use of both primary and secondary data. Data collection was done through a structured questionnaire. To collect primary data from respondents a five point Likert type scale was used. In this scale, 1 represents “not at all”; 2 “to a small extent”; 3”to a moderate extent”; and 5 “to a very large extent”. The questionnaires were distributed and responses collected by the researcher. Respondents consisted of an individual manager from each company with an emphasis on Human Resource Managers and General Managers among others. These managers were chosen as the preferred respondents because they were perceived to have access to the information required for this study. In addition the researcher used secondary data on financial performance from the organizational financial reports of the year ended December 2015. These were readily available from the organizational financial online reports with an exception of a few organizations.

1.3.4 Data Analysis

Data analysis involved estimation of both the measurement and structural models, the testing of the hypothesis and determining the models predictive relevance. This was done using structural equation modeling (SEM), particularly the Partial Least Squares structural equation modelling (PLS-SEM). The study employed the SmartPLS software tool, version 3.2.1 for analysis of primary data (Hair, Ringle & Sarstedt, 2013; Hair, Sarstedt, Hopkins & Kuppelwieser, 2014). In congruence with the current study’s philosophical paradigm, research that applies SEM and is appropriate for studies based on positivist epistemological belief (Urbach & Ahlemann, 2010).

2. LITERATURE REVIEW

2.1 Knowledge Management

Knowledge resources are considered to be a set of unique factors of production. They are differentiated from the customary factors of production such as land and labour which are subject to diminishing returns. In contrast, every incremental unit of knowledge employed successfully leads to a marginal growth in performance (Gold et al., 2001). Chen et al. (2010); asserted that knowledge contributes to and is generated from innovation.

The role and influence of knowledge in the modern social and organizational setting is immensely weighty. (Foray, 2004; Foss, 2005). OECD (1996) posit that the contemporary economy is based on knowledge. In agreement with this, World Bank (2007) found that the knowledge economy is characterized by a well trained and learned population, institutions that encourage and reward knowledge creation and transfer in the economy aimed at growth, welfare, continued upgrading of information systems, and a relevant innovation system. Pemberton and Stonehouse (2000), hold that knowledge may be personified into an organizations knowledge assets that comprise of its essential proficiencies, value-enhancing undertakings, systems, technology, structures, products and services. Knowledge is a human, highly individual asset and embodies the collective know-how and labour of networks and alliances.

2.2 Organizational Characteristics

Organizational characteristics can be regarded as the organizations’ subsystems that are within the control of the organization and have an effect on the achievement of organizational goals. They are distinguished from environmental elements external to the organization that also influence organizational performance but are not in the control of the organization (Morton, 1995). Keen, (1993) describes organizational characteristics as organizational resources which include human, business and technology resources. For purposes of this study, structure, organizational culture, human capital and IT infrastructure have been used. These were chosen because they have been depicted as knowledge management enablers or knowledge management infrastructure, which is crucial for management of knowledge (Lee and Choi

2003, Gray and Durcikova 2005).

Organizational structure refers to the way in which responsibility, power and work procedures are distributed amongst organization participants (Nahm, Vonderembse and Koufteros, 2003). According to Eriksen (2005) organizational structures have been categorized as either organic or mechanistic. According to Lunenburg (2012), mechanistic and organic organizations are opposite ends of a continuum of organizational structure types. Mechanistic organizations are characterized by efficiency, rigid chain of command, predictability, elevated levels of formality, strict adherence to guidelines and procedures, centralized decision making and vertical specialism. It has downward flow of communication and narrowly defined tasks.

Organic organizations are flexible, and adaptable. In particular, organic organizations have weak or multiple hierarchies, low levels of formalization, loose rules and policies, horizontal specialization and decentralized decision making where employees participation is encouraged. Communication flows downwards and upwards. Responsibility for tasks is flexible because they are adaptable to changing conditions. Organic structures can be defined as loose structures with little formalization, in which multifaceted systems are in use and participatory decision making is the norm. On the other hand, mechanistic structures are extremely centralized and formal. (Miller and Droge, 1986).

Organizational culture has been described as a configuration of uncomplicated assumptions, designed, learned, or advanced by a particular group in the process of learning to handle its difficulties as it adapts to the external environment as well as internal integration. According to Denison (1990), the culture of an organization forms the basis of its organizational management system, principles, practices and expected behavior. It influences the way in which decisions are made and also the way in which information and knowledge is shared and preserved (Stoyko, 2009).

Tayles, Pike and Sofian (2007), posit that Human Capital (HC) denotes knowledge, competences, experience and creativity of the workforce as well as their attitudes and motivation. Human capital specifically comprises the personal stock of knowledge entrenched in the organizations' combined competency to excerpt the best resolutions from the organizational members (Bontis, 2001). It is described as comprising of the employees' skillfulness, experience, abilities, and implicit knowledge (Edvinsson and Malone, 1997). According to Kaplan and Norton (2004), human capital is understood as intellectual capital to mirror the creativity, knowledge, thinking, and decision making of human resources in organizations. Ulrich Lang (2001) posit that human capital is the main component in knowledge conception. The study found that, knowledge is created and held conjointly by organizational members in closely interwoven teams. Human capital emanates from human resources in the terms of knowledge and skills possessed by the employees. The quality of human capital in an organization is due to employee selection, development, and use (Koch and McGrath, 1996).

2.3 Organizational Performance

Balta (2008) found organizational performance to be an intricate and multifaceted phenomenon. In agreement with this Richard, Devinney, Yip, and Johnstone (2009) posit that organizational performance comprises three precise parts of organizational results; financial results consisting of return on investments, profits and return on assets; market outcomes in terms of market share and sales; and investor yield in terms of aggregate investor profit and economic value addition. Eisenhardt and Santos (2002), found that most researchers in knowledge management did not study performance, while others merely stated that some knowledge management practices would enhance an organizations competitive advantage and performance. This indicates that more research needs to be done on organizational performance because it is an important indicator of the wellbeing of organizations and in turn an indicator of the wellbeing of an economy.

From a customary standpoint, organizational performance is usually represented as financial performance, however consideration of finances, resources, operations, services, markets and human resources are vital in the determination of the overall bottom line of an organization (Dixon, 1999). In an effort to measure performance, such tools as the Balanced Score Card (BSC) and Intellectual Capital (IC) concepts have emerged. These concepts measure both financial and non-financial performance. To measure financial and non-financial aspects of organizational performance, the researcher adopted the use of the BSC proposed by Norton and Kaplan (1996). In the BSC, performance is measured by including financial performance and measures that are not financial which comprise customer perspective, internal business process and organization learning and growth.

2.4 Organizations Listed in the Nairobi Securities Exchange

According to (Olweny and Kimani 2011) the Nairobi stock exchange spurs fiscal growth in Kenya. The empirical results of the Granger causality test, done in their study supported the conclusion of the existence of a causal connection amid stock market performance and economic growth. Hence, current stock values are expected to mirror the anticipated future dividends. This being the case the NSE 20-share index could therefore be a basis for forecasting impending economic activity. An upsurge in the NSE 20-share index is a potential indicator of the market's anticipation of greater dividends, corporate profits and consequently, greater economic growth. Results of companies listed on the NSE are expected to be an indication of the general economic performance in Kenya. This is because the companies listed are representative of the main sectors of the Kenyan economy.

The NSE started operations in the early 1920s as an informal market place for local shares and stocks. In 1954 it was recognized by the London Stock Exchange as an overseas stock exchange (Kibuthu, 2005). In 1994 the NSE broke a record in performance with a yield of 179%. Consequently the NSE was ranked as the world's best performing market by the International Finance Corporation (IFC). In 2006, the NSE applied an automated trading system which facilitated live trading. Trading hours were also increased. In 2014 the NSE sold its shares to the public. To date the NSE has continued to grow and become a major financial institution.

2.5 Knowledge Management and Organizational Performance

A number of scholars have done empirical research concerning the relationship amid knowledge management and organizational performance. Choi et al. (2008) carried out a study on the effects of knowledge management strategy on organizational performance. Data was collected from 900 large and profitable Korean companies. A survey was carried out resulting into a response rate of 14.6 %. Majority of these organizations (43 %) were in the manufacturing sector. The study resulted in mixed results in that some strategies were found to have a positive correlation with organizational performance, while others were negatively correlated to organizational performance. They found that when knowledge is generated and dispersed throughout the organization, it enhances the organization's value by increasing its proficiency to respond to fresh and unfamiliar circumstances. The study was however carried out only among large and profitable organizations making it prone to a bias that could have enabled knowledge management strategies to perform above the norm. The validity of the results may not also be generalizable to organizations globally because the study was limited to large, profitable, Korean organizations.

Yli-Renko, Autio and Sapienza (2001) carried out a study on social capital, knowledge acquisition and knowledge exploitation among fledgling technology based companies in the United Kingdom. A survey was carried out on 936 firms that were between one and ten years old, that were independent, and involved in developing, commercializing or manufacturing innovative technology. 180 returned questionnaires were usable; a response rate of 19.2%. The study revealed that knowledge procurement was positively correlated with several or-

ganizational results including innovation in new products, improved technological advancement, and cost reduction in sales. The results may not be generalizable to companies that exist in less dynamic business environments with less technology.

Maseki (2012) conducted a study to examine the relationship between knowledge management and performance of commercial banks in Kenya. They used a questionnaire comprising of open ended and closed ended questions to collect primary data. The population comprised of 43 commercial banks operating in Kenya as at 31st December, 2011 in which they used content analysis. The study established that knowledge management led to improvement of product and service quality, increased throughput, inventive capability and undertakings. Competitive capability and positioning in the business environment improved with embracing of knowledge management.

Riungu (2015) examined the effect of knowledge management practices on organizational performance of Kenyan mobile telephone companies. The researcher used open and closed ended questions to gather data. Both descriptive and regression analysis were used to analyze data. The research findings were that knowledge management practices influences organizations by improving employee knowledge, decision making, improving service provision, reducing operation costs and improving competitiveness. Riungu (2015) collected data in only 21 Kenyan mobile telephone companies. This population of study represented a very small sample of only one sector in the Kenyan economy, therefore the results may not be generalizable to other organizations.

2.6 Knowledge Management, Organizational Characteristics and Organizational Performance

Knowledge management competences (knowledge acquisition, knowledge conversion, and knowledge application) are imbedded in organizational process and are resultant from patterns of organizational configuration and culture (Liao and Wu 2009). In Kenya, Adan (2013) conducted a case study on the influence of knowledge management enablers on organizational performance in Kenya Revenue Authority. Results indicate that organizational performance is associated with the corporate cultural factors such as collaboration, trust, learning and leadership. The results further showed that structural issues had a moderate to high effect on organizational performance. This study did not test whether these knowledge management enablers had moderated the relationship between knowledge management and performance. The study was a case study giving rise to the need to carry out a study that includes many organizations from different sectors to improve the reliability of the findings. Content analysis was applied for the study. Content analysis may be limited by availability of materials to analyze. It is also difficult to link data items to each other (Cavanagh, 1997). This being the case the findings cannot be robust enough to be generalizable across organizations.

Lai (2013) found that organizational structure had a moderating role in the relationship between knowledge management and performance, while structure did not have a direct relationship with knowledge management capabilities or job performance. The study made use of secondary data from Survey Research Data Archive. It may be necessary to replicate a study using primary data. The study was limited to shipping companies and port authorities of international ports in Taiwan, it therefore may not be generalizable to other organizations or cultural setups. It is notable that only job performance was analyzed, other indicators of organizational performance were not analyzed. In conflict with (Lai, 2013) findings, (Sheng and Tian (2010), found that organizational structure and organizational effectiveness had a negative relationship.

Chen et al. (2010) carried out a study on knowledge management and innovativeness. They collected data using a questionnaire from a sample of 146 firms drawn from the top 5000 Taiwanese firms listed in the year book published by The China Credit Information Services Corporation. Regression analysis was employed for the assessment of the relationships. They reported that there was no interaction effect of knowledge sharing with either formalisation or centralization. They revealed that the interaction terms of knowledge sharing and organi-

zational structure were insignificant. They also found that formalisation and centralization did not provide a context that was strong enough to stimulate knowledge sharing leading to innovation. The study only involved top performing Taiwanese organizations therefore it is not generalizable across organizations. In addition, the study did not consider overall organizational performance.

A case study was conducted by Allame, Nouri, Tavakoli, and Shokrani (2011), to establish the effects of organizational culture on the success of knowledge management systems implementation. A total of 98 questionnaires were collected from employees of various branches of Saderat Bank in Iran. Findings indicated that organizational culture did not play a mediating role on the relationship amongst knowledge management and organization benefits. It also found that knowledge management and organizational benefits had a high positive mutual correlation. The study did not test whether organizational culture moderated the relationship between knowledge management and performance. Another limitations was that the study involved only one bank. This could have made the study prone to bias. In addition, because it was a case study, the results may not be generalized to other types of businesses.

Hamid (2008) carried out a study to determine whether the relationship between human capital and learning resulted into competitive advantage. The study concluded that human capital is a crucial asset in an organization. Hatch and Dyer (2004) investigated whether human capital and learning resulted into competitive advantage in USA, Asia and Europe. They collected data among 25 semi-conductor manufacturing industries sampled from a list of world class manufacturers. The questionnaires were sent only to those who agreed to participate. As such the response rate was 100%. The findings revealed that managing the human resource selection, development, and deployment could lead to significant improvement of learning and consequently competitive advantage. Human capital development through training resulted in more productive employees who can meaningfully participate in the learning activities of the firm. Surprisingly in contrast to these findings (Seleim et al., 2007) found there was a significantly positive correlation between the number of departing superstar developers and organizational performance.

Rasula et al. (2012) analyzed the effect of knowledge management on organizational performance in Slovenia and Croatia. The sample involved 3089 companies. 329 respondents returned duly filled questionnaires. They found that knowledge management heavily depends on technology and that information technology had a positive indirect influence on knowledge management adoption. In conflict with (Rasula et al., 2012). (Chuang, 2004) found no correlation between technical knowledge management resource and competitive advantage.

3. THE RESEARCH HYPOTHESES

H1: There is a relationship between knowledge management and organizational performance.

H2: Organizational characteristics moderate the relationship between knowledge management and organizational performance.

4. FINDINGS

4.1 Response Rate

The population of the study entailed all the organizations that were listed on the NSE as at the end of 2015. There were 61 publicly quoted companies as at 2015. In the course of the study the researcher found that one company had been delisted while another had been suspended. The total number of companies surveyed thus reduced to 59. Out of these, 46 respondents returned their filled responses. However only 43 questionnaires were usable, translating into a response rate 73%. This response rate was good based on the fact that Baruch and Holtom (2008) concluded that a 35% response rate is adequate for a cross sectional survey.

4.2 Measurement Model Evaluation

4.2.1 Measurement Model's Indicator Loadings and Indicator Reliability

In a reflective model, a researcher starts by examining the indicator loadings which is similar to factor analysis. Indicator loadings are also known as outer model loadings or measurement loadings. These are considered to be a form of indicator reliability coefficients for reflective models (Garson, 2016). Data is standardized automatically in SmartPLS, hence the loadings vary from 0 to 1. The closer to 1, the loadings are the more reliable the indicator is. Indicator loadings of 0.7 signify that a construct explains about 50% of the indicator's variance (Henseler et al., 2012). As a rule of thumb an indicator with a loading below 0.7 should be dropped to improve composite reliability (Hair et al., 2014).

Any indicator with loadings of less than 0.7 is dropped one at a time and the analysis run each time an indicator is dropped until only those with loadings of 0.7 and above remain. In this study the construct knowledge management originally had 16 indicators, 7 indicators were dropped leaving only 9 indicators which achieved loadings of 0.7 and above. The construct organizational characteristics had 24 indicators of which a total of 14 indicators were dropped leaving 10. The dependent construct of organizational performance had 18 indicators, 3 were dropped leaving 15. This led to a respecified structural model as presented in figure 4.1

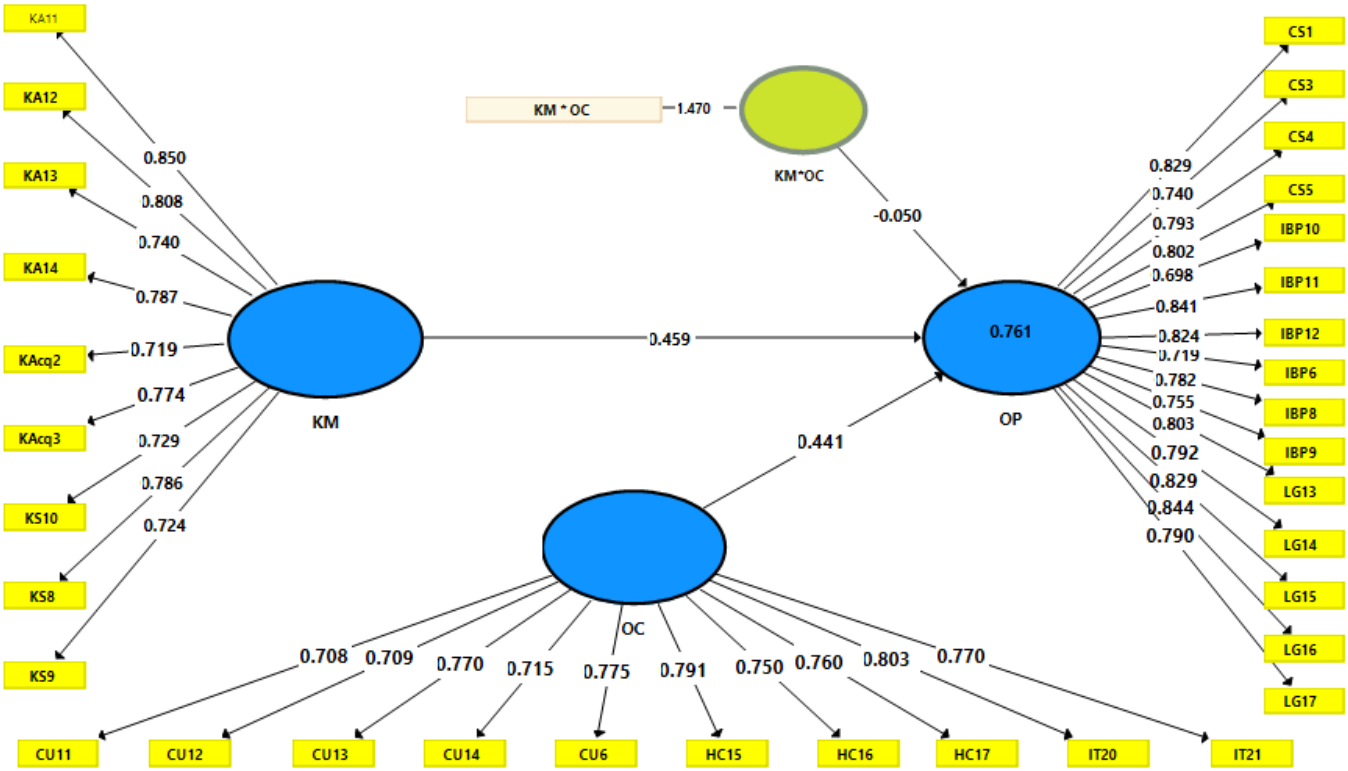

Figure 4.1 Respecified structural model

4.2.2. Measurement Model's Internal Consistency Reliability

Internal consistency reliability was measured using the composite reliability measure which is a less conservative measure as compared to Cronbach's (1951) alpha measure. The Composite reliability measure ought to be 0.7 or higher. Higher levels in terms of composite reliability indicate higher levels of internal consistency (Bagozzi and Yi 1988; Hair et al. 2012). Results of composite reliability in the current study are presented in table 3.1 as follows: knowledge management construct 0.929, organizational characteristics; 0.939 and organizational performance; 0.961. These exceeded the minimum requirement of a level of 0.7. This indicates high levels of internal consistency reliability for both constructs in the model.

In addition to the composite reliability test, the Cronbach's alpha statistical test was also carried out. The Cronbach's alpha coefficient ranges from 0 to 1. The higher the coefficient the more reliable the scale. Similar to the acceptable measure of composite reliability, (Nunnally, 1978) suggested that as a rule of thumb, a reliability coefficient value equal to or above 0.7 is statistically acceptable for a study. In comparison the Cronbach alpha results for knowledge management are 0.914, organizational characteristics; 0.916 and organizational performance 0.957. These results are very close to those from the composite reliability tests and indicate high levels of internal consistency reliability.

	Cronbach's Alpha	Composite Reliability
Knowledge management	0.914	0.929
Organizational characteristics	0.916	0.939
Organizational performance	0.957	0.961

Table 3.1 Cronbach Alpha and Composite reliability

Source: Primary Data (2018)

4.2.3. Measurement Model's Convergent Validity

Convergent validity evaluates the level to which a construct converges in its indicators by explaining the indicators variance. Fornell and Larcker (1981) direct that convergent validity is determined by calculating the AVE for all indicators related to each construct. The AVE value is the mean of the squared loadings of all the indicators of a construct. An acceptable AVE value should be equal to or greater than 0.50. This implies that 50% or more of the indicators variance can be explained through the model (Chin, 2010). Table 4.2 presents the AVE values for the extant study. The Fornell and Larcker (1981) criterion established that all the AVE values for the respecified reflective constructs were higher than the squared interconstruct correlations. All constructs have AVE value ranging from 0.571 to 0.657, which exceeds the endorsed threshold value of 0.5 as presented in table 3.2. In conclusion therefore, the respecified measurement model has satisfactory convergent validity.

	Average Variance Extracted (AVE)
Knowledge management	0.593
Organizational characteristics	0.571
Organizational performance	0.625

Table 4.2: Average Variance Extracted (AVE)

Source: Current Researcher (2018)

4.2.4. Measurement Model's Discriminant Validity

Discriminant validity assesses the level to which an individual construct is empirically dissimilar from the other constructs. This measure is necessary so as to guarantee that a reflective construct has stronger relationships with its own indicators when compared with its relationship with the indicators of other constructs in the SEM model (Hair et al 2014). For this analysis the heterotrait-monotrait (HTMT) ratio measure of discriminant validity was used. In a good model, the heterotrait correlations should be less than the monotrait correlations translating to a HTMT ratio of below 1.0. Henseler et al. (2015), Teo, Srivastava, & Jiang, (2008), Gold et al., (2001) further agree that if the HTMT ratio measures below 0.9, this establishes discriminant validity amid a given pair of reflective latent constructs. In the current study the pairs of latent constructs were found to have discriminant validity as presented in table 4.3.

	Original HTMT Ratio
OC -> KM	0.749
OP -> KM	0.840
OP -> OC	0.841

Table 4.3 Heterotrait Monotrait Ratio

Source: Primary data (2018)

4.3. Assessment of the Structural Model

Once the measurement model assessment has been completed and the model has been found to be satisfactory, the structural model is examined. The extant measurement model was found to satisfy the validity and reliability requirements. Endorsing the structural model aids the researcher to methodically evaluate the plausibility of the hypotheses in the structural model (Garson, 2016).

4.3.1. Goodness of Fit for the Structural Model

The PLS-SEM model is presumed to have the correct specifications and is therefore tested based on how well it predicts the endogenous constructs. This is done through testing the statistical significance of the path coefficients and measurement of the coefficients of determination (R^2), also known as the predictive power of the exogenous constructs. This is done simultaneously with the evaluation of the R^2 change (f^2 effect size). Before this can be done, analysis has to be carried out to test for potential multicolliniearity between the constructs. In PLS SEM the level of multicollinearity is indicated by the VIF coefficients. A well-fitting model without multicollinearity should have VIF coefficients of less than 5.0 (Sarstedt, Ringle, Smith, & Hair, 2014). In the current model the VIF values was were below 5.0 indicating absence of collinearity. This is presented in table 4.4.

	KM	**Moderating Effect 1**	**OC**	**OL**	**OP**
Knowledge management (KM)				1.000	3.518
Moderating Effect 1 (of organizational characteristics on the relationship between knowledge management and organizational performance).					1.628
Organizational characteristics (OC)					3.476

Table 4.4: Collinearity Statistics (VIF)

Source: Primary data (2018)

4.3.2. Model's Coefficient of Determination/Predictive Power (R2)

This step consists of a review of the coefficient of determination also referred to as the R^2 value of each endogenous construct. The R^2 value is a computation of a models predictive power. It's a measurement of the explained variance in the individual exogenous constructs (Sarstedt et al., 2014). The R^2 value ranges between 0 and 1, the greater the number, the greater its predictive power. According to Garson (2016), an R^2 value of 0.67 indicates substantial predictive power, while 0.33 is moderate and 0.25 is weak.

The extant study has one endogenous construct; organizational performance. The predictive power of the model for organizational performance gave rise to the following results $R^2 = 0.641$, $t = 7.130$, $P < 0.05$ and $f^2 = 1.786$. This indicates that 64.1% of the variance in organizational performance in this model can be explained by knowledge management in companies listed in the Nairobi securities Exchange. In line with the aforementioned criteria by Garson (2016), a predictive power of 0.641 is moderate.

5. Hypotheses Testing

5.1 The Hypothesized Relationship between Knowledge Management and Organizational Performance

The hypothesis proposes that there is a relationship between knowledge management and organizational performance of companies listed in the Nairobi Securities Exchange. The PLS-SEM analysis on this hypothesis gave rise to the following results: $\beta = 0.801$, $t = 14.220$. $P < 0.05$. These results indicate a positive and significant path relationship between knowledge management and organizational performance. The predictive power (coefficient of determination) results were, $R^2 = 0.641$, $t = 7.130$, $P < 0.05$ and $f^2 = 1.786$. This indicates that 64.1% of the variance in organizational performance in this model can be explained by knowledge management. These results specify a positive statistically significant relationship between knowledge management and organizational performance. The f^2 effect size is large. Therefore the hypothesis was confirmed at the significance level of ($t > 1.96$, $P \leq 0.05$).

5.2 The Hypothesized Moderating Effect 0f Organizational Characteristics on the Relationship between Knowledge Management and Organizational Performance

Hypothesis two (H2) proposed that organizational characteristics moderate the relationship between knowledge management and organizational performance. The current study used the two stage method of PLS algorithm to test for moderation. The results achieved were: $\beta = -0.050$, $t = 0.663$, $P > 0.05$, $f^2 = 0.014$. This indicates that organizational characteristics (culture, human capital and information technology) have a negative moderating effect on the relationship between knowledge management and organizational performance, however this effect was found to be statistically insignificant at a significance level of ($t > 1.96$, $P \leq 0.05$). This means that organizational characteristics do not have a moderating effect on the relationship between knowledge management and organizational performance. This being the case H2 was not supported.

The organizational characteristics in the original model included organizational structure, culture, human capital and IT infrastructure. However all the indicators on organizational structure were dropped from the model because none of them achieved the minimum requirement loading of 0.7 for composite reliability. As a results the indicators that were retained for organizational characteristics were culture, human capital and IT infrastructure.

Hypotheses	Path Coefficients	t-Statistics	P-Values	Confirmed or Not supported
There is a relationship between knowledge management and organizational performance.	0.801	14.220	P<0.05	Confirmed
Organizational characteristics moderate the relationship between knowledge management and organizational performance	-0.050	0.663	P>0.05	Not supported

Table 5.1 Summary of Hypotheses Test at p<0.05 and t< 1.676

6. DISCUSSIONS

6.1 The Relationship between Knowledge Management and Organizational Performance

Hypothesis one (H1) involved testing whether there is a relationship between knowledge management and organizational performance. This involved testing the direct relationship between knowledge management and organizational performance. Findings reveal a positive and statistically significant path relationship at a significance level of ($t > 1.96$, $P \leq 0.05$). It also means that 64.1 % of the variance in organizational performance can be explained by knowledge management. Therefore the hypothesis was confirmed.

The results of the current study are in line with previous empirical studies such as (Forghani et al., 2017) who found that there was a significant relationship amid knowledge management dimensions and organizational performance in lean manufacturing in Iran. Empirical studies by (Hitt et al.2001; Bogner et al. 1999) found knowledge to be a very critical intangible asset within which information is embedded. Choi et al. (2008) studied the effect of knowledge management strategy on organizational performance and concluded that some strategies had a positive correlation with organizational performance while others were negatively correlated with organizational performance. On the other hand, Mills and Smith (2011) report was inconclusive on the knowledge management capability-performance link, they found that not every dimensions of knowledge management capability is significantly correlated with performance.

Scholars seem to be in agreement that knowledge management will be the most significant source of competitive advantage for organizations in future (Ferran-Urdaneta, 1999). Practitioners in US and Europe, have also reached a consensus that knowledge is crucial for sustainable competitive advantage and greater performance (KPMG Management Consulting, 1998; Price Water House Coopers and World Economic Forum 1999). This being the case, there is need for more empirical research on the relationships amid knowledge management, organizational resources and performance in different contextual settings.

6.2 The Moderating effect of Organizational Characteristics on the Relationship between Knowledge Management and Organizational Performance

The current study found that organizational characteristics which consist of organizational culture, human capital and IT infrastructure, had a negative statistically insignificant moderating effect on the relationship between knowledge management and organizational performance. Therefore H2 which proposed that organizational characteristics have a moderating effect on the relationship between knowledge

management and organizational performance was not supported. However, the results of the direct relationship between organizational characteristics and organizational performance indicate a statistically significant relationship as follows: β =0.806, t = 18.020, P < 0.05. The predictive power (R2) results were: R2 = 0.649, t = 8.998, P < 0.05, and f2 = 01.848. This indicates that 64.9% of the variance in organizational performance can be explained by the model in a direct relationship between organizational characteristics and organizational performance.

The extant study concluded that organizational characteristics did not have a moderating role on the relationship between knowledge management and organizational performance. Similar past studies on the moderating role of organizational characteristics on the relationship between knowledge management and organizational performance were hard to come by. However Danish, Din Butt and Munir (2012) found a positive moderating relationship of organizational culture in the relationship between knowledge management and organizational effectiveness.

The direct effect of organisational characteristics on organisational performance path coefficient results were as follows: β =0.806, t = 18.020, P < 0.05. The predictive power (R^2) results were: R^2 = 0.649, t = 8.998, P < 0.05, and f^2 = 01.848. This indicates that the direct relationship between organisational characteristics and organisational performance is positive and statistically significant and 64.9% of the variance in organisational performance is explained by the direct relationship model.

6.3 Conclusions

The first objective of the extant study was to determine whether there is a relationship between knowledge management and organizational performance. Using SmartPLS 3.2.1 application, PLS SEM analysis was conducted to test the direct relationship between knowledge management and organizational performance. Results indicated that knowledge management had a positive and statistically significant effect on organizational performance. The findings further extend the argument in RBV and KBV where knowledge is a crucial resource with the capability to enhance an organization's competitive advantage (Grant, 1996).

The findings of the study led to the conclusion that there is a relationship between knowledge management and organizational performance of companies listed on the Nairobi Securities exchange. The results revealed a statistically significant relationship between knowledge management and organizational performance. Therefore the hypothesis of the study was confirmed. The study findings confirm that knowledge management is a very crucial factor that enhances organizational performance. Therefore in order to enhance performance, organizations should purposefully manage knowledge in terms of knowledge acquisition, knowledge sharing and knowledge application.

Objective two focused on determining whether organizational characteristics had a moderating influence on the relationship between knowledge management and organizational performance. The test for moderation was done in two stages where the moderating effect was tested for within the current model and subsequently the direct effect of organizational characteristics on organizational performance was also tested. The moderating results were as follows: β = -0.050, P > 0.05, t = 0.663, while R^2 = 0.761, t =10.54, P < 0.05 and f^2 = 0.014. These results indicate that organizational characteristics have a negative and insignificant moderating effect on the relationship between knowledge management and organizational performance. Since the relationship is statistically insignificant H_2 is not supported.

The extant study concluded that organizational characteristics did not have a moderating role on the relationship between knowledge management and organizational performance. Similar past studies on the moderating role of organizational characteristics on the relationship between knowledge management and organizational performance were hard to come by. However Danish, Din Butt and Munir (2012)

found a positive moderating relationship of organizational culture in the relationship between knowledge management and organizational effectiveness.

6.4 Limitations of the Study

In the course of the research process the researcher experienced some limitations. However, these did not cause significant interference with the outcome of the study. The geographical spread of the organizations was a major hurdle. Most of the organizations are spread over and across various towns in Kenya including Nairobi, Mumias, Thika, Ruiru and Athi River, while one is in Uganda. Given that the study was a census of all the organizations listed on the NSE, it was a major challenge to access the organizations and this caused a major delay in completing the data collection process. In addition, the data collection process was extremely expensive especially because the researcher did not receive any funding grant to facilitate the process.

Data was collected from one manager from each organization. These managers were drawn from various departments and included Human resource managers, ICT managers, Finance managers, General Managers, and Operation Managers among others. Though the respondents were expected to give objective responses, the fact that they were from different departments may have led to differences in the way they responded to questionnaire items due to differences in their work which could lead to differing perceptions.

The survey consisted of self- reports and may have been affected by social desirability biases, common method variance, and response distortion which occur due to ego defense behaviour. In some cases a respondent may have chosen an answer aimed at giving a good image of the organization and therefore failed to give the correct responses. This may have led to a choice of the mid-scale point, or the choice the respondent perceived as the most desirable in the likert type scale. The use of the likert scale also enables respondents who do not read the questionnaire to answer it by just ticking through the answers without reading. In the current study one questionnaire was rejected when the respondent gave the scale number five as a response for almost all the questions.

REFERENCES

Africa Economic Outlook (2015). *Kenya economic survey* 2014. UNDP

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, *16*(1), 74–94.

Balta, M. E. (2008). *The Impact of Business Environment and Boards of Directors on Strategic Decision Making*: *A Case Study of Greek Listed Companies*, (Unpublished PhD Thesis). Brunei Business School.

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17 (1), 99-120.

Bartlett, J.E., Kotrlik, J.W. and Higgins, C.C. (2001) Organizational Research: Determining Appropriate Sample Size in Survey Research. *Information Technology, Learning, and Performance Journal*, 19, 43-50.

Blanchard, P., & Thacker, J. (2009). *Effective training: Systems strategies and practices*. In (4th ed.), Learning, motivation, and performance (p. 58-90). New Jersey: Prentice Hall.

Cabrita, R., & Bontis, N. (2008). Intellectual capital and business performance in Portuguese banking industry. *International Journal of Technology Management*, 43, 212-237.

Chen, C. J., Huang, J. W., & Hsiao, Y. C. (2010). Knowledge management and innovativeness: The role of organizational climate and structure. *International Journal of Manpower*, 31(8), 848-870.

Chin, W. W. (2010). *How to Write Up and report PLS Analyses,* in Handbook of Partial Least Squares, V. E. Vinzi, W. W. Chin, J. Henseler, and H. Wang (eds.), Berlin: Springer-Verlag, 655-690.

Choi, B., Poon, S.K., & Davis, J.G. (2008). Effects of knowledge management strategy on organizational performance: A complementarity theory-based approach. *The International Journal of Management Science,* 36, 235-251.

Cooper, D. R., & Schindler, P.S. (2008). *Business research methods.* 10th Edition, McGraw-Hill Higher Education.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika,* 16(3), 297–334.

Davenport, T. & Prusak, L. (2000). *Working Knowledge: How Organizations Manage What They Know*. Harvard Business School Press. Boston: Massachusetts.

Dixon, N. (1999). *The Organizational learning Cycle: How We Can Learn Collectively*. Gower, England.

Eisenhardt, K. M., & Santos, F. M. (2002). *Knowledge-based view: A new theory of strategy?* In Pettigrew, A., Thomas, H. and Whittington, r. (Eds.) Handbook of Strategy and Management, Sage Publications.

Ferran-Urdaneta, C. (1999). *Teams or Communities, Proceedings of the 1999 ACM SIGCPR Conference on Computer Personnel Research*. April 8-10, New Orleans: LA.

Foray, D. (2004). *The economics of knowledge*. MIT Press, Cambridge: Gilford, 1979.

Forghani, M. A., & Tavasoli, A. (2017). Investigating the relationship between knowledge management and organizational performance in lean manufacturing. *International Journal of Management, Accounting and Economics,* 4 (3), 218-226.

Fornell, C., & Larcker, D.F. (1981). Evaluating Structural Equations Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), 39-50.

Foss, N. J. (2005). *Strategy, economic organization and the knowledge economy, The Coordination of firms and resources,* Oxford University Press, Oxford.

Garson, G. D. (2016). *Partial Least Squares: Regression and Structural Equation Models.* Statistical Associates Publishing, Asheboro USA.

Gibson, C. B., & Birkinshaw, J. (2004). The antecedents, consequences, and mediating role of organizational ambidexterity. *Academy of Management Journal,* 47(2), 209–226.

Gold, A. H., Malhotra, A., & Segars, A.H. (2001). Knowledge management: An organizational capabilities perspective. *Journal of Management Information Systems*. 18 (1), 185-214.

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management*

Hair, J.F., Hult, G.T.M., Ringle, C.M., Sarstedt, M., 2013. A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Sage, Thousand Oaks.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Thousand Oaks: Sage.

Hair, J. F., Sarstedt, M., Ringle, C.M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science,* 40(3), 414–433.

Henseler, J., Ringle, C.M. and Sarstedt, M. (2012), *Using partial least squares path modeling in international advertising research: basic concepts and recent issues*, in Okazaki, S. (Ed.), Handbook of Research in International Advertising, Edward Elgar Publishing, Cheltenham, pp. 252-276.

Henseler, J., Ringle, C.M. and Sarstedt, M. (2015), A new criterion for assessing discriminant validity in variance-based structural equation modeling, *Journal of the Academy of Marketing Science*, 43 (1), 115-135.

Hitt, M. A., Bierman, L., Shimizu, K., & Kochhar, R. (2001). Direct and moderating effects of human capital on strategy and performance in professional service firms: A resource-based perspective. *Academy of Management Journal*, 44 (1), 13-28.

KPMG Management Consulting (1998). *The Knowledge Management Research Report,* A survey of 100 European Companies by the Harris Research Center.

Mills, A. M., & Smith, T. A (2011). Knowledge management and organizational performance: a decomposed view, *Journal of Knowledge Management*, 15(1), 56 – 171.

Moffett, S., R. McAdam, & Parkinson, S. (2003). An empirical analysis of knowledge management applications. *Journal of Knowledge Management*, 7 (3), 6-26.

Morton, K. (1995). The irony of service: Charity, projects and social change in service learning. *Michigan Journal of Community Service Learning, 2*, 19-32.

Nairobi Securities Exchange (2014), Annual report and financial statement.

Nairobi Securities Exchange (2015-2017), Investors Handbook