

Effects of Knowledge Management Adoption on Performance of Parastatals in Kenya

ROSE NYAMBURA MACHARIA & ASENATH ONGUSO
KCA University, Kenya

Abstract

Aim/Purpose: Parastatals play a critical role as far as the growth of the economy is concerned, through realization of social and economic goals. However, in Kenya, most of the parastatals have not been performing in terms of effectiveness and efficiency in service delivery. Sound performance of these parastatals require efforts to adopt knowledge management so that new forms of knowledge are created, stored, protected and utilized in decision making for improved performance. The purpose of the study was to determine the effect of knowledge management adoption on performance of parastatals in Kenya. Specifically, the study focused on determining the effect of knowledge creation and knowledge application on organizational performance. The study was informed by Knowledge Spiral Theory, organizational learning theory and knowledge based theory.

Design/Methodology: A descriptive correlational design was adopted in this study. The study targeted 207 parastatals in Kenya. The primary data was collected using structured questionnaires. The collected data was analyzed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics like means and standard deviations and inferential statistics like correlation and regression analysis played an important role during the analysis of the results. The findings were presented using frequency distribution tables, graphs and pie charts.

Findings: The study findings indicated that while knowledge creation and knowledge application had been highly adopted among the parastatals in Kenya and they had significant effect on performance.

Originality: The article leverages the balance scorecard, in measuring performance of the parastatals. Another originally established insight is that the paper has some hypotheses that were developed and tested guided by the specific objectives.

Limitations: The study was limited by a small sample size of 136 units selected from 207 firms. The challenges encountered during data collection were the health care crisis that had been created by the Covid-19 pandemic. Majority of the respondents were still working remotely and thus they could not be reached to fill in the questionnaire. This had an effect on the response rate that was recorded in the present study.

Practical Implementations: The study has shed more light on the role played by knowledge management and performance, specifically among parastatals in Kenya. Knowledge is specifically relevant among these institutions for efficient service delivery.

Keywords: Knowledge management, knowledge creation, knowledge application and organizational performance

Introduction

Background of the Study

In a highly uncertain business environment, effectively performing business entities are those with proper measures create, share, store, protect, use and reuse of new information as well as knowledge which is largely recognized as knowledge management. Presently, majority of the firms are shifting attention and focus on knowledge driven system and they are adopting knowledge management to enhance their performance. Organizations are making investment in knowledge management activities so as to effectively maintain the flow of knowledge within and out of the firm (Alharthy, Sohaib & Hawryszkiewicz, 2018). Knowledge has emerged as key resource that firms leverage on in gaining competitive advantage and thus performance. In fact, the increasingly turbulent business environment has made firms to consider knowledge as a strategic asset which when effectively utilized can help the organization to remain competitive and thus perform better. Being among the strategic resources, competitors may find it hard to imitate knowledge and this gives an organization competitive advantage as compared to other competitors in a given industry of operation (Chung et al., 2019).

The role played by knowledge management towards performance of the firm has attracted attention from a global, regional to local perspectives. On a global perspective focusing on Indonesia, Susanty and Salwa (2017) noted that KM is largely informed by three basic principles: acquisition, sharing and utilization of knowledge. In Nepal, Khanal and Paudyal (2017) argued that KM comprises of key processes including knowledge obtaining, knowledge organizing as well as knowledge application and all of them were found to positively influence the ability of the firm to perform. In Pakistan, Rehman, Asghar and Ahmad (2015) shared that KM covers key processes like creation, storage, dissemination and use of knowledge with the aim of enhancing performance of the firm. Similar views were shared by Ahmed, Fiaz and Shoaib (2015) who identified KM activities in Pakistan to cover knowledge acquisition, conversion, application and protection and all of these activities were seen to enhance the quality of services provided, enhance the level of customer satisfaction and greater profits.

In Malaysia, Ha, Lo and Wang (2016) did operationalize the capabilities of KM processes as under knowledge acquisition, conversion, application as well as protection while financial as well as non-financial constructs were used in operationalization of firm performance. In United States (US), Tovstiga et al. (2012) shared that firms collectively ensure that critical information is created, shared and stored for better performance. Dalmarco, Maehler, Trevisan and Schiavini (2017) suggested that most of the firms in Brazil at the startup phase have inadequate information on what is meant by KM adoption. Theriou, Maditinos and Theriou (2011) opined that majority of the SMEs in Brazil ensure that all the required information is acquired, created, used and protected for enhanced sustainability of their operations. Dalkir (2016) revealed that firms have instituted a number of measures of ensuring that competitive as well as strategic information is captured, stored and protected so as to enhance on performance.

Regionally, Ohiorenoya and Eboime (2014) noted that majority of the institutions of higher learning in Nigeria have embraced KM practices including the ability to create, share and disseminate knowledge. Chigada and Ngulube (2015) deduced that majority of the banking entities in South Africa have not recognized the important of KM as a way of enhancing performance. In Rwanda, Byukusenge and Munene (2017) shared that KM covers activities like creation, storage and utilization of knowledge so as to improve on performance. In Sudan, Eltayeb and Kadoda (2017) documented that the degree of commitment from the top management team and the prevailing culture in the firm are key factors that promote KM in the firm.

From the East Africa perspective, Mtega and Ngoepe (2019) acknowledge effective technological tools and their role in managing of knowledge in an organization. In Uganda, Bagorogoza (2011) shared that three categories of knowledge management in an organization include acquisition, dissemination and responsiveness to knowledge. These views were supported by Bagorogoza and Waal (2010) in the role that knowledge management plays indicating that competitive advantage predicts the ability of the firm to perform with consideration of knowledge management practices.

Locally in Kenya, Karani (2015) documented that KM plays an important role as far as acquisition, sharing and application of management knowledge in the entity was concerned. This was meant to ensure that the tangible as well as intangible knowledge assets of the firm are well managed and particularly the professional competencies, experiences and knowledge in the firm. Mtawali (2018) argued that acquisition, conversion, application and protection of knowledge has positive and significant interaction with firm performance. Kariuki and Wasike (2017) identified three key activities in KM which include knowledge acquisition, application and sharing and these were found to positively enhance firm performance. Gichuhi (2014) shared that majority of the libraries in Kenya have not appreciated the importance of KM practices. Nyaga and Bett (2018) did indicate that majority of the SMEs in Kenya create, acquire, share and implement knowledge so as to improve on their performance.

A parastatal is a state enterprise that is formed by a specific Act of the Parliament and is established to achieve specific goals and objectives. Most of the parastatals in Kenya were created during colonial times so as to offer monopolistic services. There are about 207 parastatals operating in various ministries in Kenya (appendix v). Obudo and Wario (2015) however argues that majority of these parastatals have come under increased pressure to enhance their level of efficiency and effectiveness which are core indicators of performance of any firm.

Given the role played by these parastatals in the growth of the economy; efforts are required to ensure they perform better. These parastatals require competent and qualified professionals with varying skills and abilities so as to cope with the ever changing business environment. In practice, this calls for the need to adopt knowledge management so that new skills and competencies are created and utilized for better performance. The need for knowledge management adoption for these Parastatals is urgent given the fact that majority of these entities have been performing dismally. It is therefore against this background that the current study sought to determine the interaction between KM adoption and performance of these parastatals.

Research Problem

Parastatals play a critical role as far as the growth of the economy is concerned, through realization of social and economic goals. These Parastatals are spread across the sectors of the economy including education, health, sport and agriculture sectors among others and they act as bridge for people to access government services at relatively lower prices (Liu, Chan, Zhao & Liu, 2019). However, most of these parastatals have not been performing in terms of effectiveness and efficiency in service delivery. Sound performance of these parastatals require efforts to adopt knowledge management so that new forms of knowledge are created, stored, protected and utilized in decision making for improved performance (Dingsøyr, 2019).

A number of studies have been conducted on knowledge management adoption for instance; Song, Li and Zhao (2019) looked at KM strategy and ability of the firm to perform using a case of businesses in China. The study noted that KM strategies have direct influence on firm performance. Hanif, Malik and Hamid (2018) looked at KM and firm performance where a positive link was established. Orga, Nnadi and Chioma (2018) conducted a study to determine the influence of KM on competitive advantage of food and beverage firms in Nigerian context where a posi-

tive link was established between KM and firm competitive positioning. These studies however were not conducted in Kenya creating contextual gap.

Locally in Kenya, Gichuki (2014) examined how the firm can gain competitive advantage through KM practices with key emphasis on hotels operating at the coast in Kenya. It was shown that majority of the coastal hotels have adopted knowledge management in areas including knowledge creation, acquisition, filtering storage, application and distribution. Nzongi (2018) looked at KM and its interaction with competitive advantage with a focus on the real estate sector. It was shown that technology is used in creation, sharing and storage of knowledge by employees in most real estate firms. The study linked KM with competitive advantage and not organizational performance hence a gap. Abdille (2017) studied the interaction between KM strategy and financial performance of SMEs in Wajir. It was shown that creation, sharing and implementation of knowledge all have positive and significant interaction with financial performance of SMEs. Mungai (2019) studied the interaction between KM practices and performance of SMEs operating in Nairobi. It was shown that creation; acquisition, sharing and implementation of knowledge positively enhance performance of the firm.

The reviewed studies point out gaps as some of them were done in other countries away from Kenya. Other studies related KM and competitive advantage and financial performance and not specifically organizational performance. All these bring about the contextual and conceptual gaps which the current study sought to fill by examining the effect of knowledge management adoption on performance of parastatals in Kenya.

Research Objectives

- i. To determine the effect of knowledge creation on performance of parastatals in Kenya;
- ii. To establish the effect of knowledge application on performance of parastatals in Kenya.

Research Questions

- i. What is the effect of knowledge creation on performance of parastatals in Kenya?
- ii. What is the effect of knowledge application on performance of parastatals in Kenya?

Literature Review

Theoretical Framework

The study was encored on knowledge spiral theory, organization learning theory and knowledge based theory.

Knowledge Spiral Theory

It is Nonaka and Takeuchi (1995) who advanced this Knowledge Spiral Theory and it tries to offer an explanation on the spirals involved in transforming tacit to explicit knowledge and back in an organizational setting. This transformation of knowledge from one form to the other facilitates innovation and learning at personal, group as well as organizational levels in an enterprise. The theory provides four modes that are involved in transformation of knowledge from one form to the other: socialization, externalization, combination and internalization. These modes are summarized in Figure 1 below:

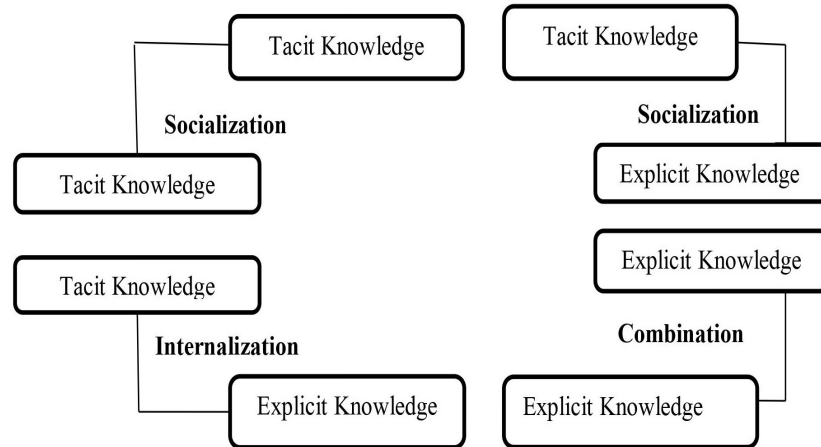


Figure 1: Nonaka's Four Modes of Knowledge Conversion

Thus, conversion of knowledge from tacit to tacit form results into socialization process. Externalization is where tacit knowledge is converted into explicit one. With combination, an organization converts explicit to explicit knowledge while internalization is where explicit knowledge is converted to tacit knowledge (Dalkir, 2011).

A thorough comprehension of a number of processes involved in conversion of knowledge helps in understanding the interaction in various types of knowledge. This also plays an important role for managers to understand the various KM adoption in their firms aimed at strengthening performance. Determination of the various types of knowledge and how they interact with each other is an important aspect of KM adoption which goes a long way to enhancing performance of the firm. The relevance of the theory to the study is that it informs how various forms of knowledge interact with each other in an organization which determines the KM practice that the firm may opt to adopt for better performance.

Organization Learning Theory

The key proponent of this theory is Nevis, DiBella and Goulds (1995). Where learning in the firm is viewed as the degree to which new skills are created and transformed into new knowledge that is utilized in key processes and decision making. The entire process of turning the firm into a learning organization begins with acquisition and creation of knowledge and information that is crucial and strategic. Weick and Daft (1984) noted that the degree to which an organization is able to interpret information lays the foundation for organizational learning process. The climax of the organizational learning process is creation of new forms of knowledge that support decision making processes in the firm (Huber, 1991).

In the simplest form, the term learning organization implies an entity where employees are constantly seeking for knowledge and information on new ways of innovation so as to enhance on performance. The rationale for firms to embrace learning organization is because of the market pressure and challenges encountered by the firms (Inkinen, Kianto and Vanhala, 2015). However, learning would only occur in the firm when considerable efforts have been made to change actions so that these activities are aligned with the prevailing circumstances (Jain & Moreno, 2015).

The theory provides the stages that organizations go through so as to become a learning firm. This starts with acquisition of data and then interpretation after which adapta-

tion is done (Inkinen, 2016). The relevance of this theory to the study is that it explains the role played by knowledge in making an organization to be innovative and thus better performance.

Knowledge Based Theory

It is Grant (1996) who developed this knowledge based theory. The theory indicates that the key processes involved in KM adoption for instance creation, storage, sharing and implementation all play a critical role in enhancing performance of the firm (Soderberg and Holden, 2002). Thus, the theory provides a direct link between KM adoption and the ability of the firm to perform. The theory considers knowledge as one of the critical resources that firms have at their disposal which shape and determine performance.

The theory further indicates that the knowledge in the firm is incorporated within the various activities and operations in the firm including the systems and the day to day routines in the entity. The theory indicates that firms are made up of knowledge based assets which are rare, difficult to imitate and be copied by the rivals in the industry and all these drive competitive positioning of the firm in the industry and thus better performance (Kaivo-oja, Virtanen, Jalonen and Stenvall, 2015). The relevance of this theory to the study is that it provides a link between the KM adoption (creation, storage, protection and utilization) and how they determine the ability of the firm to perform.

Empirical Review

Knowledge Creation and Organizational Performance

Yu, Zhang, Lin and Wu (2017) looked at the role played by knowledge creation on competitive advantage of the firm focusing on Chinese context. With 315 firms covered and adoption of a structured equation modeling, it was noted that the ability to create knowledge and competitive positioning of the firm are not significantly linked with each other. However, the study was done in China and thus raising contextual gap. Al-Mulhim (2017) concentrated on the banking industry in Saudi Arabia to determine the interaction between knowledge creation and firm performance. The study placed emphasis on the four modes of knowledge conversion by Nonaka model. It was shared that the ability to create knowledge and firm performance are significantly linked with each other. Mehralian, Nazari and Ghasemzadeh (2018) leveraged on the BSC to establish the interaction between knowledge creation and the ability of the firm to perform. Leveraging on survey as the design with use of SEM, it was shown that the activities entailed in creation of new information and ability of the entity to perform are significantly linked. However, the focus of the inquiry was on Iran and not in Kenya.

In Pakistan, Laeeque and Babar (2017) looked at the interaction between knowledge creation and the ability of the firm to perform. The key emphasis of the inquiry was on telecommunication entities with operations in Pakistan. A direct link was noted between the ability to create knowledge and performance. The study was however conducted in Pakistan and not in Kenya. Lien, Kuo and Ng (2014) did an inquiry in Taiwan with emphasis on creation of knowledge and its link with ability of the entity to perform where a direct link was identified. However, the inquiry was conducted in Taiwan and not in Kenya. Gholami, Asli, Shirkouhi and Noruzy (2013) empirically analyzed the link between KM practices and performance. It was acquired that the ability to create, store, share and actualize various forms of knowledge in an entity has a significant link with the ability of the staff to carry out their activities in an entity. Mulhim (2017) did an inquiry in Saudi Arabia sharing that ability to create knowledge and performance are related with each other in significant terms. However,

the inquiry was conducted in the banking industry of Saudi Arabia creating contextual gap.

Cheewanan and Vichita (2017) focused on coming up with new information and its link with ability of the entity to perform. The specific focus of the study was on banking entities in Thailand. The ability to create new knowledge and performance of the banking entities were seen to be significantly linked with each other. Iyer, Sharp and Brush (2017) looked at coming up with new knowledge and its link with innovative ability of the entity and shared a direct link. Laeeque and Babar (2017) focused on creation of new knowledge and its link with ability of the entity to perform with emphasis on entities in Pakistan. A significant link was identified between creation of new knowledge and the ability of the firm to realize the goals. However, the inquiry was done in Pakistan and not in Kenya creating contextual gap.

While leveraging on BSC, Mehralian, Nazari and Ghasemzadeh (2018) did an inquiry into ability to create new knowledge and its link with the need for the entity to perform. With adoption of survey as a key methodology, a direct link was noted between creation of knowledge and ability of the firm to perform. A study conducted in Pakistan by Laeeque and Babar (2017) did look at the need to create new knowledge and its link with the ability of the entity to perform. The link between creation of knowledge and the ability of the entity to perform was noted as direct and significant in this investigation. However, the inquiry was done in Pakistan and not in Kenya and thus raising contextual gap.

Ramírez, Morales and Rojas (2011) looked at the ability to come up with new knowledge and its link with the ability of the entity to perform. A direct link was noted between the need for the entity to establish new knowledge its need to perform and thus remain viable in the industry where it operates. Chung, Liang, Peng, Chen and Sharma (2019) did an inquiry into the ability to create knowledge and its link with ability of the entity to realize the goals where a direct link was noted. Arijitsatien and Ractham (2017) looked at creation of knowledge and its link with performance of the business entity, where a direct and significant link was noted. Bikash (2018) did an inquiry sharing that creation of new knowledge is key in performance of the entity. However, the study was done in Bangladesh and not in Kenya.

Knowledge Application and Organizational Performance

Chang, Liu, Chung, Huang and Chen (2017) indicated that through application of knowledge, there is logical application in enhancing the efforts to learn in the entity. It is only when the acquired information has been utilized that it can create meaning and adds value to the entity (Derman and Jaeger, 2018). An inquiry was conducted by Fujinuma and Wendling (2015) to link the need to apply knowledge and how it interacts with ability of students to perform. To measure performance of students, the study relied on the level of satisfaction of students with tutors, course and essay exams. The study established that constant knowledge application can result into better student performance. Seeber et al. (2013) looked at how knowledge application influenced performance of teams. Specifically, the study examined how attributes of teams like task routines and organization, integration of expertise and IT support influences performance of employees in teams. The study established that through application of knowledge, synergy increased in teams resulting into better organizational performance.

Ode and Ayavoo (2019) looked at the ability to apply knowledge and its link with the innovative ability of the entity. SEM was used as a methodology and the inquiry was conducted in Nigeria. It was shown that the practices involved in management of knowledge can have a direct and indirect link with the innovative desire of the entity. It was indicated that the ability of the entity to create, store and apply the various knowledge drive and boosts its innovative ability. This shows that the extent which an entity manages knowledge has a direct link with innovative ability. Lee, Hsu

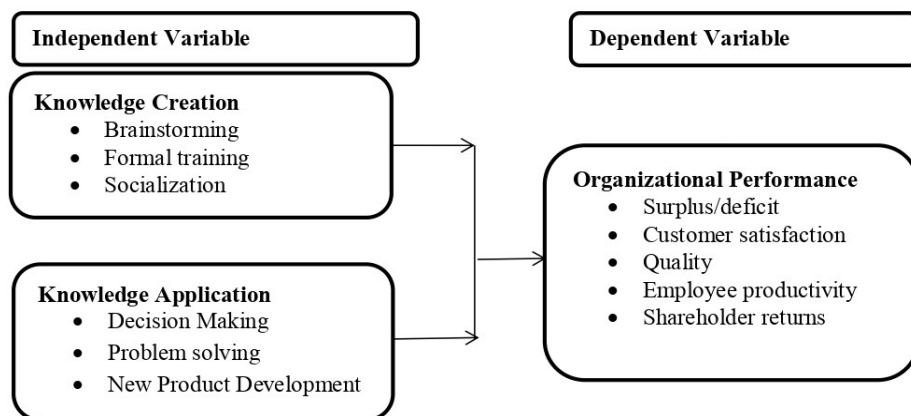
and Lin (2011) looked at how knowledge application influences development of new products. The study focused on manufacturing firms in Taiwan. The findings confirmed that knowledge application significantly influences performance. However, this study was conducted in Taiwan and not in Kenya and thus creating contextual gap. Kinyua, Muathe and Kilika (2015) did an inquiry into the ability to transfer and apply knowledge and its link with performance of Kenyan banking entities. In total, 43 banking entities were covered by the inquiry. The views of the respondents were sought with aid of semi-structured tools. The adopted designs included the explanatory and cross-sectional analysis. With the response rate standing at 73%, it was noted that the transfer of knowledge and its application positively affected performance. However, the study create gap as it was conducted in the banking sector unlike the present study which shall be done among parastatals.

Boswell (2015) looked at knowledge and its use in informing the development of policies. Two countries were covered, Germany and the United Kingdom. It was shared that the culture if the country at the national level may predict the ability to use knowledge. Avby, Nilsen and Ellström (2017) did a study in Sweden to bring out the interaction between the use of knowledge and learning ability in the day to day. It was a qualitative inquiry that was supported by the gathering of information with aid of interviews and documentaries. It was noted that knowledge is important on the day to day activities of the learning institutions. However, the study creates contextual gap as it was done in Sweden and not in Kenya.

Shen, McCarthy, Fuster, Lewis and Burrowes (2020) did an inquiry covering Chile and Mexico to find out the link between the use of knowledge and the development of policies. Gathering of the views from the respondents was supported by semi-structured interviews. The detailed analysis shared that knowledge is an important ingredient that inform development of policies and regulations at the national level. The study creates contextual gap as it only focused on Mexico and Chile and not in Kenya. Sousa, Cascais and Rodrigues (2015) was keen to bring out the interaction between use of knowledge and the innovative ability of the entity. The specific focus of the inquiry was corporations operating in Portugal. The views of the respondents were gathered with aid of group recall. A significant link was identified between use of knowledge and the ability of the entity to innovate.

Conceptual Framework

Figure 2 shows the conceptual framework of the study.



Conceptual Framework (Source; Author, 2020)

Research Hypotheses

H₀₁: Knowledge creation has no significant effect on performance of parastatals in Kenya

H₀₂: Knowledge application has no significant effect on performance of parastatals in Kenya

Research Methodology

Research Design

A descriptive correlational design was adopted in this study. The descriptive design helped in describing KM adoption and performance of parastatals. According to Creswell and Creswell (2017), the descriptive research describes the phenomenon the way it is by tabulating raw data into a useable format. The correlational design helped in bringing out the cause effect link between KM adoption and performance.

Target Population

A total of 207 parastatals were targeted by the inquiry. These parastatals are classified into 18 categories based on their operations as shown in Table 1. The study targeted one respondent (knowledge manager) from each of these parastatals. In case of absence of a knowledge manager, any senior staff holding the equivalent role was targeted. The target population was therefore 207.

Category/Classification	Target Population
Interior & Coordination of National Government	2
Devolution and Planning	9
Defence	1
National Treasury	21
Agriculture , Livestock & Fisheries	25
Education, Science and Technology	42
Energy and Petroleum	9
Industrialization and Enterprise Development	14
East African Affairs, Commerce and Tourism	10
Office of The Attorney General and Department of Justice	7
Labor, Social Security and Services	4
Sports, Culture and The Arts	7
Information, Communication and Technology	8
Transport and Infrastructure	13
Environment and Natural Resources	11
Water and Imigation	13
Lands, Housing and Urban Development	2
Health	9
Total	207

Table 1: Target Population (Source: Inspectorate of State Corporations, 2020)

Sampling Design and Sample Size

Sample size is a segment from the targeted respondents that is selected for inclusion in the inquiry. The essence of doing sampling is because it is uneconomical to collect data from a large population. The sample size of the study was determined scientifically using the formula by Yamane (1967) provided as follows:

$$n = N / (1 + Ne^2)$$

n = is the desired sample size (when population is less than 10,000)

N = is the target population

e = is the acceptable margin of error estimated at 0.05 (at 95% confidence interval)

$$\begin{aligned} \text{Therefore, sample size } (n) &= 207 \div (1 + 207 (0.0025)) \\ &= 207 \div (1 + 0.5175) \\ &= 207 \div 1.5175 \\ n &= 136 \end{aligned}$$

Therefore, the sample size of the study was 136. The respondents were purposively selected from each of the respective strata as indicated in Table 2.

Category/Classification	Target Population	Sample Size
Interior & Coordination of National Government	2	1
Devolution and Planning	9	9
Defence	1	1
National Treasury	21	14
Agriculture, Livestock & Fisheries	25	17
Education, Science and Technology	42	21
Energy and Petroleum	9	9
Industrialization and Enterprise Development	14	7
East African Affairs, Commerce and Tourism	10	5
Office of The Attorney General and Department of Justice	7	7
Labor, Social Security and Services	4	2
Sports, Culture and The Arts	7	7
Information, Communication and Technology	8	4
Transport and Infrastructure	13	8
Environment and Natural Resources	11	6
Water and Irrigation	13	8
Lands, Housing and Urban Development	2	1
Health	9	9
Total	207	136

Table 2: Sample Size (Source: Public Service Commission, Kenya (PSCK) (2020) & Inspectorate of State Corporations (2020)

Data Collection

The views of the respondents were sought using first hand sources including the questionnaire. Both open as well as close ended items were included in the questionnaire. Structuring of the items on the questionnaire was done with aid of the Likert scale. The division of the questionnaire was informed by the key variables hence sections. The choice of selecting on first hand sources of information was informed by past pre-

vious inquiries like Nzau (2017) and Nyaga and Bett (2018) who also did an inquiry on knowledge management.

Pilot Testing

The tools of the inquiry were pilot tested among 10 respondents who were drawn from the sample. At the end of the piloting undertaking, those participants were excluded from the final sample. This aimed at eliminating possible biasness in the inquiry. The essence of piloting was to bring out the flaws in administration and handling of the tools by the participants.

Validity and Reliability of the Instruments

Research instruments are deemed as valid when they measure what they are supposed to measure. To determine validity of the research instruments, the researcher engaged supervisor to review questionnaires to determine their validity. At the end of this review, poorly structured questions were deleted from the questionnaire. Reliability is the degree of constancy of the researcher instruments. The researcher relied on internal measure of consistency called Cronbach Alpha to determine reliability of the instruments. Coefficients of over 0.7 showed that the instruments are reliable.

Data Analysis and Presentation

It is through data analysis that the views of the respondents are processed to create meaning. Once data had been gathered, data cleaning was done with the aid of excel after which it was exported into SPSS. The study adopted the use of means and standard deviations in analysis. Correlation analysis was used to establish the relationship between KM adoption and performance. For drawing of inferences between the adoption of KM and ability of the entities to perform, the following regression model was helpful:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2$$

Where β_0 is a constant, X_1 = knowledge creation and X_2 = knowledge application

Findings

Response Rate

The researcher administered 136 questionnaires to the respondents out of which 85 were dully filled and returned. This gave a response rate of 62.5% which was consistent with Mugenda and Mugenda (2003) who noted that a response rate of above 60% is good for presentation and analysis of the findings.

Descriptive Analysis of the Variables

The study values of means and standard deviations were computed on each of the specific independent objective variables of the study as indicated in subsequent sections.

Knowledge Creation and Organizational Performance

The results of knowledge creation which was the independent objective variable of the study were established and summarized as indicated in Table 3.

	Mean	Std. Dev
Team leaders encourage brainstorming among members in this organization	3.75	.754
Brainstorming helps employees to come with new innovative ideas in this organization	3.68	.710
Brainstorming enhances creativity among employees in this organization	3.78	.490
Brainstorming helps employees to come up with new solutions to problems facing this organization	3.85	.600
New skills are created through formal training of employees in this organization	3.67	.520
The formal training equip employees with new knowledge to carry out their duties	3.89	.535
Socialization equips new employees with relevant skills in this firm	3.81	.587
Socialization helps new staff to understand the deep values of this organization	3.77	.446
Overall Score	3.78	0.580

Table 3: Knowledge Creation and Organizational Performance

The results in Table 3 indicate an overall score of (M=3.78, SD=0.580), where the value of mean is interpreted to infer that the studied parastatals actually did practice knowledge creation.

Knowledge Application and Organizational Performance

The findings on knowledge application were established and summarized as indicated in Table 4.

	Mean	Std. Dev
The firm gathers market intelligence to make informed decisions	3.85	.789
Decisions are made based on information that is available in this firm	3.68	.990
The firm collects new information to be used in solving problems	3.84	.944
New insights are used to solve complex problems in this firm	3.74	.940
Information stored in the data base is used to solve problems in this firm	3.83	.704
We use existing information to develop new products in this firm	3.65	.866
We gather new information from customers to develop new products	3.88	.643
We use information from suppliers to develop new products	3.81	.906
Overall Score	3.79	0.848

Table 4: Knowledge Application and Organizational Performance

The results in Table 4 indicate an overall score of (M=3.79, SD=0.848), which imply that knowledge application had been adopted in the studied organizations.

Inferential Statistics Linking Knowledge Management Adoption and Organizational Performance

This section is set out to present the findings of correlation analysis that was used to test the relationship between KM adoption and organizational performance as well as the regression results that tested for the effect of KM adoption and organizational performance.

Correlation Matrix

Correlation analysis was conducted to establish the relationship between KM adoption and organizational performance. The results are as indicated in Table 5.

			Organi- zational Perfor- mance	Knowle- dge Pro- tection	Knowle dge Ap- plication
Organizational Performance	Pearson Correlation		1		
	Sig. (2-tailed)				
	N		85		
Knowledge Creation	Pearson Correlation		.768**		
	Sig. (2-tailed)		.000		
	N		85		
Knowledge Application	Pearson Correlation		.731**	.773**	1
	Sig. (2-tailed)		.000	.000	
	N		85	85	85

Table 5: Correlation Matrix

The study established that knowledge creation (r=0.768) had strong and positive relationship with organizational performance. The findings of the study indicated that knowledge application (r=0.731) had a strong and positive relationship with organizational performance.

Regression Results and Hypothesis Testing

Regression analysis was conducted to establish the effect of knowledge application on organizational performance as well as for testing the hypotheses of the study.

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
1	.834 ^a	.696	.681		1.39944

Table 6: Model Summary

From Table 6, it can be noted that the value of R was 0.834, which means that knowledge management adoption had a strong and positive relationship with performance of the studied organizations. The results indicate the value of R square as 0.696, which means that 69.6% change in performance of the parastatals in Kenya is explained by their knowledge management adoption. The results of the ANOVA of the regression model were determined and presented as shown in Table 7.

	Sum of Squares	df	Mean Square	F	Sig.
Regression	359.020	2	179.51	93.951	.000 ^b
Residual	156.675	82	1.911		
Total	515.694	84			

Table 7: Analysis of Variance

The results in Table 7 indicate the value of F calculated as 93.951 with a p-value $p=0.000$ which is less than 0.05. This means that knowledge management adoption had significant effect on performance of the studied parastatals in Kenya. The results of the regression beta coefficients and the p-values that determined the significance are as indicated in Table 4.18.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-9.119	4.409		-2.068	.042
Knowledge Creation	.784	.195	.408	4.014	.000
Knowledge Application	.228	.081	.288	2.810	.006

Table 8: Regression Beta Coefficients and Significance

The first objective of the study sought to determine the effect of knowledge creation on performance of parastatals in Kenya. The results indicated that holding other variables constant, a unit change in knowledge creation would lead to .784-unit increase in performance of parastatals in Kenya. The first hypothesis of the study was H_{01} : knowledge creation has no significant effect on performance of parastatals in Kenya. From the results, the study noted that knowledge creation had a p-value of 0.000 which was less than 0.05 and thus it was significant. Thus, hypothesis H_{01} was

rejected where the study deduced that knowledge creation has significant effect on performance of parastatals in Kenya.

The last objective of the study sought to establish the effect of knowledge application on performance of parastatals in Kenya. The study noted that when holding other variables constant, a unit change in knowledge application would lead to 0.228-unit increase in performance of parastatals in Kenya. The last hypothesis of the study was H_{02} : knowledge application has no significant effect on performance of parastatals in Kenya. From the results, knowledge application had a p-value $p=0.000$ which was less than 0.05 and thus it was significant. Thus, the study rejects hypothesis H_{02} and deduce that knowledge application has significant effect on performance of parastatals in Kenya.

Discussion

The results of the descriptive statistics indicate that the studied parastatals actually did practice knowledge creation. A discussion of knowledge creation is provided by Alavi and Leidner (2001) who viewed knowledge creation as the development of new or replacement of existing contents and that there are four basic modes as far as creation of knowledge is concerned: these involve the ability to socialize, externalize, internalize and combine. Knowledge storage covers knowledge available in a number of forms including written documents. The results indicate that respondents were of the view that knowledge creation had a great effect on performance of their organizations. The result is in line with Gholami et al. (2013) who acquired that the ability to create, store, share and actualize various forms of knowledge in an entity has a significant link with the ability of the staff to carry out their activities in an entity. Mulhim (2017) did an inquiry in Saudi Arabia sharing that ability to create knowledge and performance are related with each other in significant terms. Cheewanan and Vichita (2017) noted that the ability to create new knowledge and performance of the banking entities were seen to be significantly linked with each other. Iyer et al. (2017) looked at coming up with new knowledge and its link with innovative ability of the entity and shared a direct link. Laeeque and Babar (2017) focused on creation of new knowledge and its link with ability of the entity to perform with emphasis on entities in Pakistan where a significant link was identified between creation of new knowledge and the ability of the firm to realize the goals.

From the results, the study noted that knowledge creation had a p-value of 0.000 which was less than 0.05 and thus it was significant. Thus, hypothesis H_{01} was rejected where the study deduced that knowledge creation has significant effect on performance of parastatals in Kenya. These results are empirically supported by some past studies. For instance, Yu et al. (2017) noted that the ability to create knowledge and competitive positioning of the firm are not significantly linked with each other. However, the study was done in China and thus raising contextual gap. Al-Mulhim (2017) shared that the ability to create knowledge and firm performance are significantly linked with each other. Mehralian et al. (2018) established that the activities entailed in creation of new information and ability of the entity to perform are significantly linked. Laeeque and Babar (2017) looked at the interaction between knowledge creation and the ability of the firm to perform where a direct link was noted between the ability to create knowledge and performance. Lien et al. (2014) did an inquiry in Taiwan with emphasis on creation of knowledge and its link with ability of the entity to perform where a direct link was identified.

The second objective of the study was to establish the effect of knowledge dissemination on performance of parastatals in Kenya. From the descriptive statistics most of the studied organizations did practice knowledge dissemination. The results were that respondents were of the view that knowledge dissemination had a great effect on performance of their organization. Similarly, Al-Kashari and Al-Taheri (2019)

shared that sharing of knowledge enhances the ability of the entirety to perform. Bagaja and Guyo (2015) focused on Kenya public entities of higher learning institutions and sought to bring out the link between sharing of knowledge and their ability to perform where a positive link was shared. However, this was a case study. The second hypothesis of the study was H_{02} : knowledge dissemination has no significant effect on performance of parastatals in Kenya. From the findings, knowledge dissemination had a p-value of 0.015, which was less than 0.05. Thus, the study rejected the second hypothesis H_{02} and inferred that knowledge dissemination has significant effect on performance of parastatals in Kenya. The results are consistent with Palacios-Marques et al. (2013) who did an analysis of transfer of knowledge and its link with performance using a case of Spain among telecommunication entities and a significant link was noted. Al-Ali (2013) looked at the practices entailed in sharing knowledge and their link with the ability of the entity to perform and a direct link was noted. Levine and Prietula (2012) shared that creating new knowledge and the ability of the entity to perform are linked with each other. Oyemomi et al. (2014) established that firms are only to be competitively positioned when they are able to share knowledge.

The third objective of the study was to determine the effect of knowledge protection on performance of parastatals in Kenya. The results of descriptive statistics indicate that knowledge protection was moderately practiced in the studied organizations. Bolisani et al. (2013) noted that the strategies for protecting knowledge include patenting and the use of copy rights. Bagley (2018) shared that in South Africa, knowledge was protected with the help of intellectual property. Dagne (2014) focused on protection of knowledge in the contextual of intellectual property laws on a global scale where some of the strategies that were noted for protecting knowledge in this study include patents and trademarks. De-Faria and Sofka (2010) established that that majority of the entities had adopted patenting and trademarks as way of protecting their knowledge capabilities. The study creates contextual gap as it was done in Germany and Portugal and not in Kenya. It was shown that respondents shared that knowledge protection greatly affected performance of their organization. Sofka and Shehu (2009) shared that majority of the firms in Germany had adopted patenting as a means of protecting their knowledge. The study however creates contextual gap as it was conducted in Germany and not in Kenya. The third hypothesis of the study was H_{03} : knowledge protection has no significant effect on performance of parastatals in Kenya. From the findings, knowledge protection had a p-value of $p=0.734$, which was greater than 0.05 and thus insignificant. Thus, hypothesis H_{03} was accepted by the study hence inferring that knowledge protection has no significant effect on performance of parastatals in Kenya. The result contradicts Oorschot et al. (2018) who shared that protecting knowledge can have a long lasting impact on the ability of the firm to perform and ultimately its success as opposed to sharing which was seen to enhance innovative ability of the firm that would drive its ability to perform.

The last objective of the study sought to establish the effect of knowledge application on performance of parastatals in Kenya. The results of the descriptive statistics indicate that knowledge application had been adopted in the studied organizations. The results indicate that respondents were of the view that knowledge application had a great effect on performance of their organizations. This finding is supported by Chang et al. (2017) indicated that through application of knowledge, there is logical application in enhancing the efforts to learn in the entity. It is only when the acquired information has been utilized that it can create meaning and adds value to the entity (Derman and Jaeger, 2018). Fujinuma and Wendling (2015) established that constant knowledge application can result into better student performance. Seeber et al. (2013) established that through application of knowledge, synergy increased in teams resulting into better organizational performance. The last hypothesis of the study was H_{04} : knowledge application has no significant effect on performance of parastatals in Kenya. From the results, knowledge application had a p-value $p=0.000$

which was less than 0.05 and thus it was significant. Thus, the study rejects hypothesis H_{04} and deduce that knowledge application has significant effect on performance of parastatals in Kenya. The result is in line with Ode and Ayavoo (2019) who noted that the practices involved in management of knowledge can have a direct and indirect link with the innovative desire of the entity and that the ability of the entity to create, store and apply the various knowledge drive and boosts its innovative ability. Lee, Hsu and Lin (2011) confirmed that knowledge application significantly influences performance. Kinyua et al. (2015) noted that the transfer of knowledge and its application positively affected performance.

Conclusion

The study concludes that majority of the parastatals in Kenya have adopted knowledge creation as they seek to enhance their performance. This is consistent with the knowledge spiral theory that relates with how new knowledge can be created through transformation of tacit to explicit knowledge. New knowledge can be created through various means including socialization which ensure that new staff in the organization is accustomed to the values and the identified of the organization. The study has shown that the parastatals that seek to enhance on their performance must continuously create new forms of knowledge that are diffused among the staff working in different departments, achieved through organizational learning.

Knowledge application was among the highly practiced aspects of knowledge management among the studied parastatals in Kenya. This conclusion is supported by the organizational learning theory and the knowledge based theory. In view of these theories, the newly created knowledge in the organization should be applied in the organization to drive innovation, inform decision making and develop new products. The study also concludes that majority of the parastatals in Kenya are leveraging on knowledge application in order to enhance their performance.

Implications of the Findings for Policy and Practice

The findings imply that the Human resource managers and the knowledge managers working among parastatals in Kenya should encourage staff in all departments to continuously create new forms of knowledge that would drive performance of the organization. The Human Resource managers of parastatals in Kenya should empower staff in different departments to apply new knowledge in making suggestions that should be implemented for better performance. Production managers and operations managers should ensure that new forms of knowledge have been applied in development of new products or modification of the existing products and services.

Limitations of the Study

The study was limited on primary data that was collected using the questionnaire with both close ended and open ended questions. The challenges encountered during data collection were the health care crisis that had been created by the Covid-19 pandemic. Majority of the respondents were still working remotely and thus they could not be reached to fill in the questionnaire. This had an effect on the response rate that was recorded in the present study. The study was further limited by a small sample size of 136 units selected from 207 firms.

ROSE NYAMBURA MACHARIA & ASENATH ONGUSO

Correspondence

Rose Nyambura Macharia
School of Business and Public Management
KCA University
P. O. Box 56808 – 00200
Nairobi, Kenya
Email: roseddic80@gmail.com

References

- Abdille, A. N. (2017). *Influence of Knowledge Management Strategy on the Financial Performance of Small and Medium Enterprises in Wajir County, Kenya* (Doctoral Dissertation, Kenyatta University).
- Abdullah, F. A. M. (2017). The Effects of Knowledge Creation Process on Organizational Performance: Evidence from Saudi Banking Sector (January 2017). *International Journal of Management Sciences and Business Research*, 6(1) (2017).
- Abubakar, A. M., Elrehail, H., Alatailat, M. A., & Elçi, A. (2019). Knowledge management, decision-making style and organizational performance. *Journal of Innovation & Knowledge*, 4(2), 104-114.
- Agbim, K. C., & Idris, A. J. (2015). Competitive advantage through knowledge dissemination: An empirical analysis of hotels in Makurdi metropolis, Benue state, Nigeria. *European Journal of Business and Innovation Research*, 3(1), 22-35.
- Ahmed, S., Fiaz, M., & Shoaib, M. (2015). Impact of knowledge management practices on organizational performance: an empirical study of banking sector in Pakistan. *FWU Journal of Social Sciences*, 9(2), 147-167.
- Al Ali, A. H. (2013). *The Effect of Knowledge Sharing Practices on Organization Performance* (Doctoral dissertation, The British University in Dubai (BUiD)), UAE.
- Al Kashari, Z., & Al Taheri, F. (2019). The Role of Knowledge Sharing in Organizational Performance. *American Scientific Research Journal for Engineering, Technology, and Sciences (ASRJETS)*, 62(1), 30-38.
- Alharthy, A. A. M. (2018). *The role of knowledge creation process in enhancing organizational resilience and performance*. Open Publications of UTS Scholars retrieved from <http://hdl.handle.net/10453/127935>.
- Alharthy, A., Sohaib, O., & Hawryszkiewicz, I. (2018). The Impact of Knowledge Creation on Organizational Resilience towards Organizational Performance. In B. Andersson, B. Johansson, S. Carlsson, C. Barry, M. Lang, H. Linger, & C. Schneider (Eds.), *Designing Digitalization (ISD2018 Proceedings)*. Lund, Sweden: Lund University. ISBN: 978-91-7753-876-9. <http://aisel.aisnet.org/isd2014/proceedings2018/ISDevelopment/10>.
- Anuforo, P. U., Ayoup, H., Mustapha, U. A., & Abubakar, A. H. (2019). The Implementation of Balance Scorecard and Its Impact on Performance: Case of Universiti Utara Malaysia. *International Journal of Accounting & Finance Review*, 4(1), 1-16.
- Arijitsatien, C., & Ractham, V. V. (2017). The effects of knowledge creation process upon the organizational performance: A study of Thai banking industry. *Int. J. Cult. Hist*, 3, 236-242.
- Avby, G. (2015). *Evidence in practice: On knowledge use and learning in social work* (Vol. 641). Linköping University Electronic Press, Sweden.
- Avby, G., Nilsen, P., & Ellström, P. E. (2017). Knowledge use and learning in everyday social work practice: a study in child investigation work. *Child & Family Social Work*, 22, 51-61.

Bagaja, G. S. (2015). Effect of Employee Knowledge Sharing On Organizational Performance in Public Universities in Kenya, Case of University Of Nairobi. *Strategic Journal of Business & Change Management*, 2 (23),444-464.

Bagaja, G., & Guyo, W. (2015). Effect of employee knowledge sharing on organizational performance in public universities in Kenya, case of University of Nairobi. *The Strategic Journal of Business Change and Management*, 2(33), 444-464.

Bagley, M. A. (2018). Toward an Effective Indigenous Knowledge Protection Regime: Case Study of South Africa.

Bagorogoza, J. (2011). Improving organizational performance through knowledge management: The case of financial institutions in Uganda. *Working Papers* 2011/18, Maastricht School of Management.

Bagorogoza, J., & de Waal, A. (2010). The role of knowledge management in creating and sustaining high performance organisations: The case of financial institutions in Uganda. *World Journal of Entrepreneurship, Management and Sustainable Development*. 4(6), 307-324.

Bikash B, (2018). Impact of Knowledge Creation on Organizational Performance in the Service Organizations of Bangladesh. *The International Journal of Management* 7 (4), 11-20.

Bolisani, E., Paiola, M., & Scarso, E. (2013). Knowledge protection in knowledge-intensive business services. *Journal of Intellectual Capital*. 14(2),192-211.

Boswell, C. (2015). Cultures of Knowledge Use in Policymaking: The Functions of Research in German and UK Immigration Policy. In *Integrating Immigrants in Europe* (pp. 19-38). Springer, Cham.

Brix, J. (2017). Exploring knowledge creation processes as a source of organizational learning: A longitudinal case study of a public innovation project. *Scandinavian Journal of Management*, 33(2), 113-127.

Byukusenge, E., & Munene, J. C. (2017). Knowledge management and business performance: Does innovation matter?. *Cogent Business & Management*, 4(1), 1368434.

Caruso, S. J. (2017). A foundation for understanding knowledge sharing: organizational culture, informal workplace learning, performance support, and knowledge management. *Contemporary Issues in Education Research*, 10(1), 45.

Ce, E. E., & Makore, S. (2016). The relationship between knowledge dissemination and organisational performance in the construction industry. *The Scientific Journal for Theory and Practice of Socio-economic Development*, 4(8): 477-492.

Chang, Y. H., Liu, Y. F., Chung, W. L., Huang, C. W., & Chen, G. D. (2017, July). Improve Knowledge Application Capability by Script Authoring and Comic Drama Performing. In *2017 IEEE 17th International Conference on Advanced Learning Technologies (ICALT)* (pp. 116-118). IEEE.

Chung, T. T. R., Liang, T. P., Peng, C. H., Chen, D. N., & Sharma, P. (2019). Knowledge Creation and Organizational Performance: Moderating and Mediating

Processes from an Organizational Agility Perspective. *AIS Transactions on Human-Computer Interaction*, 11(2), 79-106.

Dagne, T. (2014). Protecting Traditional Knowledge in International Intellectual Property Law: Imperatives for Protection and Choice of Modalities, 14 J. Marshall Rev. Intell. Prop. L. 25 (2014). *The John Marshall Review of Intellectual Property Law*, 14 (1), 2.

De Faria, P., & Sofka, W. (2010). Knowledge protection strategies of multinational firms—A cross-country comparison. *Research Policy*, 39(7), 956-968.

Derman, R. J., & Jaeger, F. J. (2018). Overcoming challenges to dissemination and implementation of research findings in under-resourced countries. *Reproductive health*, 15(1), 86.

Dingsøyr, T. (2019). Knowledge management in medium-sized software consulting companies: An investigation of intranet-based knowledge management tools for knowledge cartography and knowledge repositories for learning software organisations. *arXiv preprint arXiv:1903.11854*.

Elliott, K., Pataconi, A., Swierzbinski, J., & Williams, J. (2019). Knowledge protection in firms: A Conceptual framework and evidence from HP labs. *European Management Review*, 16(1), 179-193.

Eltayeb, S., & Kadoda, G. (2017, November). The impact of knowledge management practices on business strategies and organizational performance. In *2017 Sudan Conference on Computer Science and Information Technology (SCCSIT)* (pp. 1-7). IEEE.

F Al Mulhim, A. (2017). The Effects of Knowledge Creation Process on Organizational Performance: Evidence from Saudi Banking Sector. *International Journal of Management Sciences and Business Research*, 6(1).

Fernandez Miguel, R., Carro Saavedra, C., & Lindemann, U. (2016). Factors influencing knowledge application: A review from the knowledge management field. In *DS 84: Proceedings of the DESIGN 2016 14th International Design Conference* (pp. 985-996).

Gebru, A. (2017). The Global Protection of Traditional Knowledge: Searching for the Minimum Consensus. *J. Marshall Rev. Intell. Prop. L.*, 17, i.

Gichuki, M. (2014). Achieving competitive advantage through knowledge management practices by the hotels in the coastal region, Kenya. *Unpublished MBA Thesis*, the University of Nairobi, Kenya.

Gunjal, B. (2019). Knowledge management: why do we need it for corporates? *Malaysian Journal of Library & Information Science* (ISSN: 1394-6234).

Ha, S. T., Lo, M. C., & Wang, Y. C. (2016). Relationship between knowledge management and organizational performance: a test on SMEs in Malaysia. *Procedia-Social and Behavioral Sciences*, 224, 184-189.

Hanif, M. I., Malik, F., & Hamid, A. B. A. (2018). The effect of knowledge management and entrepreneurial orientation on organization performance. *Journal of Entrepreneurship Education*. 21 (4), Retrieved from <https://www.abacademies.org/articles/>

the-effect-of-knowledge-management-and-entrepreneurial-orientation-on-organization-performance-7509.html

Harrigan, K. R., & DiGuardo, M. C. (2017). Sustainability of patent-based competitive advantage in the US communications services industry. *The Journal of Technology Transfer*, 42(6), 1334-1361.

Iyer, D. N., Sharp, B. M., & Brush, T. H. (2017). Knowledge creation and innovation performance: An exploration of competing perspectives on organizational systems. *Universal Journal of Management*, 5(6), 261-270.

Kang, H., & Lee, W. (2020). How innovating firms manage knowledge leakage: A natural experiment on worker mobility Available at SSRN: <https://ssrn.com/abstract=3171829> or <http://dx.doi.org/10.2139/ssrn.3171829>

Karani, R. A. (2015). Effect of knowledge management practices on performance of mobile telephone companies in Kenya. *Unpublished MBA project*. University of Nairobi, Nairobi, Kenya.

Kariuki, A., & Wasike, S. (2017). Knowledge Management and Performance in manufacturing firms: the mediating role of learning organization. *Unpublished MBA Thesis*, Karatina University, Kenya.

Khanal, L., & Paudyal, S. R. (2017). Effect of Knowledge Management Practices on the Performance of Nepalese Financial Institutions. *Journal of Advanced Academic Research*, 4(1), 44-59.

Kingston, J. (2012). Choosing a knowledge dissemination approach. *Knowledge and Process Management*, 19(3), 160-170.

Kinyua, G., Muathe, S. M. A., & Kilika, J. M. (2015). Influence of Knowledge Transfer and Knowledge Application on Performance of Commercial Banks in Kenya. *Journal of Emerging Issues in Economics, Finance and Banking*, 4(2), 1648-1660.

Laeque, S. H., & Babar, S. F. (2017). Knowledge creation and firm performance: Is innovation the missing link?. *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, 11(2), 505-523.

Lafreniere, D., Menuz, V., Hurlimann, T., & Godard, B. (2013). Knowledge dissemination interventions: a literature review. *Sage Open*, 3(3), 2158244013498242.

Levine, S. S., & Prietula, M. J. (2012). How knowledge transfer impacts performance: A multilevel model of benefits and liabilities. *Organization Science*, 23(6), 1748-1766.

Lien, C. Y., Kuo, F. I., & Ng, E. (2014). *Discussion on study of knowledge creation, innovation ability and organizational performance for high-tech industries in Taiwan* International Conference on Marketing Studies, June 18-20, Taipei, Taiwan.

Liu, Y., Chan, C., Zhao, C., & Liu, C. (2019). Unpacking knowledge management practices in China: do institution, national and organizational culture matter? *Journal of Knowledge Management*. 23(2), 30-45.

Lombardi, R. (2019). Knowledge transfer and organizational performance and business process: past, present and future researches. *Business Process Management Jour-*

nal. 25(1), 2-9.

Mehralian, G., Nazari, J. A., & Ghasemzadeh, P. (2018). The effects of knowledge creation process on organizational performance using the BSC approach: the mediating role of intellectual capital. *Journal of Knowledge Management*, 22(4), 802-823.

Mtawali, B. C. (2018). *Knowledge Management Practices and Performance Of Micro-Finance Institutions In Kenya: A Case Of Uwezo Micro-Finance Bank* (Doctoral Dissertation, School Of Business, Kenyatta University).

Mtega, W. P., & Ngoepe, M. (2019). Knowledge management best practices among rice farmers in selected areas of Tanzania. *Journal of Librarianship and Information Science*, 52(2), 331-344

Mungai, J. W. (2019). *Knowledge Management Practices and Performance of Small and Medium Enterprises In Nairobi City County, Kenya* (Doctoral Dissertation, Kenyatta University, Kenya).

Mwangi, C. K. (2019). *Protecting traditional knowledge in Kenya through African Customary Law: an analysis of inclusive subordination* (Doctoral dissertation, Strathmore University, Kenya).

Mwangi, Z. K. (2019). *Effect of Knowledge Transfer Processes on Employee Performance in State Corporations in Kenya* (Doctoral dissertation, JKUAT-COHRED), Jomo Kenyatta University of Agriculture and Technology, Kenya.

Nasution, M. K. (2018, March). Indonesia knowledge dissemination: A snapshot. In *Journal of Physics: Conference Series* (Vol. 978, No. 1, p. 012012). IOP Publishing.

Natera, J. M., Tomassini, C., & Vera-Cruz, A. O. (2019). Policy analysis and knowledge application for building a healthy health innovation system in developing countries. *Innovation and Development*, 9(2) 159-168.

Ngah, R., & Ibrahim, A. R. (2010). *The effect of knowledge sharing on organizational performance in small and medium enterprises. Conference: Knowledge Management International Conference 2010 At: Kuala Trengganu, Malaysia.*

Nyaga, P. M. & Bett, S. (2018). Knowledge management practices and performance of small and medium enterprises in Nairobi City County, Kenya. *International Academic Journal of Human Resource and Business Administration*, 3(1), 451-475

Nzau, W. (2017). *Knowledge Management Strategies on Performance of Information, Communication and Technology Companies in Nairobi County* (Doctoral dissertation, United States International University-Africa).

Nzongi, L. N. (2018). *Effect of Knowledge Management on Competitive Advantage in the Real Estate Sector: The Case of Pam Golding Properties* (Doctoral dissertation, United States International University-Africa).

Ode, E., & Ayavoo, R. (2019). The mediating role of knowledge application in the relationship between knowledge management practices and firm innovation. *Journal of Innovation & Knowledge*. 5(3), 210-218.

Odongo, N. H., Wang, D., & Suntu, S. L. (2018). Influence of knowledge sharing on organisational performance. *International Journal of Knowledge-Based Development*, 9(3), 261-278.

Oorschot, K. E. V., Solli-Sæther, H., & Karlsen, J. T. (2018). The knowledge protection paradox: imitation and innovation through knowledge sharing. *International Journal of Technology Management*, 78(4), 310-342.

Orga, J. I., Nnadi, C. S., & Chioma, E. N. (2018). The Role of Knowledge Management on the Competitive Advantage of Food and Beverage Firms in South East Nigeria. *Scholars Journal of Economics, Business and Management* 4(2), 612-622.

Oyemomi, O., Liu, S., & Neaga, I. (2014). The contribution of knowledge sharing to organizational performance and decision making: A literature review. In *Decision support systems iv-information and knowledge management in decision processes* (pp. 1-12). Springer, Cham.

Palvalin, M., Vuori, V., & Helander, N. (2018). The relation between knowledge transfer and productivity in knowledge work. *Knowledge Management Research & Practice*, 16(1), 118-125.

Prinsloo, J. W., van Waveren, C. C., & Chan, K. Y. (2017). Factors that impact knowledge dissemination in projects. *South African Journal of Industrial Engineering*, 28(1), 1-11.

Ramírez, A. M., Morales, V. J. G., & Rojas, R. M. (2011). Knowledge creation, organizational learning and their effects on organizational performance. *Engineering Economics*, 22(3), 309-318.

Reed, N., Scanlan, J., Wills, G., & Halliday, S. T. (2011). Knowledge use in an advanced manufacturing environment. *Design Studies*, 32(3), 292-312.

Rehman, W. U., Asghar, N., & Ahmad, K. (2015). Impact of Km Practices On Firms' performance: A Mediating Role Of Business Process Capability And Organizational Learning. *Pakistan Economic and Social Review*, 47-80.

Rodiah, S., & Nahartyo, E. (2019). Knowledge Sharing Behaviour: the Effect of Psychological Safety on Balance Scorecard (BSC) Implementation. *Journal of Accounting and Investment*, 20(1), 23-40.

Sandberg, J., Persson, B., & Garpenby, P. (2019). The dilemma of knowledge use in political decision-making: National Guidelines in a Swedish priority-setting context. *Health Economics, Policy and Law*, 14(4), 425-442.

Schuler, L. (2013). Modern age protection: protecting indigenous knowledge through intellectual property law. *Mich. St. U. Coll. L. Int'l L. Rev.*, 21, 751.

Shen, G. C., McCarthy, B., Fuster, M., Lewis, S., & Burrowes, S. (2020). Knowledge use in the development of sugar-sweetened beverage tax policy in Mexico and Chile: a qualitative analysis. *The Lancet Global Health*, 8, S24.

Shujahat, M., Sousa, M. J., Hussain, S., Nawaz, F., Wang, M., & Umer, M. (2019). Translating the impact of knowledge management processes into knowledge-based innovation: The neglected and mediating role of knowledge-worker productivity.