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Relationship between Knowledge Management and Firm Performance of Geospatial Firms in Kenya

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Abstract

Purpose: *The purpose of this study is to determine the relationship between knowledge management competence and firm performance of Geospatial firms in Kenya. This study was anchored on the McKinsey 7S Framework Model.*

Methods: *This study adopted the principles of positivism philosophy. A descriptive research design was adopted by the study. The study's target population included 95 Geospatial companies in Kenya. Since the target population is small the study adopted a census survey to include all the population in the sample. Both primary and secondary data was used in the study. The primary data was collected from the direct replies got from the top management of the Geospatial companies through use of structured questionnaires. Descriptive and inferential statistics were used to analyze the secondary data. Multiple regression analysis was used to test the hypothesis.*

Findings: *The results of showed that knowledge management positively and significantly impacted firm performance of geospatial firms in Kenya.*

Conclusion: *The study concludes that knowledge management an instrumental in enhancing performance of Geospatial firms in Kenya. Therefore the study recommends of Geospatial firms to be in fore front of implementing Knowledge Management so as to achieve optimum firm performance.*

Keywords: Knowledge Management, Firm Performance, Geospatial Firms

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1. Introduction

Globally today, due to high technology the market of products and services has become so competitive hence forcing organizations to act so fast in order to survive and protect their financial situations and market positions. Many organizations are always struggling to get better ways to attain a sustainable competitive advantage. They need to focus on their internal strengths in order to provide strong differentiation, create more added customer value, and extendibility or else emphasizing more on their core competencies" (Jarzabkowski, Balogun, & Seidl, 2007).

The performance of any firm increases the market value of the specific firm and enables the growth of the whole industry which promotes the overall prosperity of the economy. For any firm to perform well today, the key strategy is to ensure they are competitive in core competence leadership rather than competing for product and services leadership. The core competence is an important form of profitability in any firm therefore; it has to be a primary factor in formulating strategies (Agha, Alrubaiee, & Jamhour, 2011).

Organizational learning is an essential source of competitive advantage for a firm. This is because a firm develops a unique learning knowledge resources and capabilities that are sustainable hence giving it a competitive advantage. Knowledge Management System KMS refer generally to information technology built system that helps in managing knowledge in organizations and supporting information creation, capture, storage and its dissemination (Edelman, Brush, & Manolova, 2015). A Knowledge Management system provides a documented base of facts, sources of information and solutions that are readily accessible by employees (Fiss, 2013). Sharing this information in an organization widely can lead to effectiveness and could also lead to ideas for new or improved equipment. It encompasses a variety of practices and strategies that an organization use create, identify, distribute, represent and adoption of insights and experiences (Hill & Birkinshaw, 2012).

Knowledge management improves innovative response (Trinh-Phuong, Molla & Peszynski, 2012). Precisely, when there is favorable level of knowledge management, the implicit knowledge possessed by an employee can be transformed to explicit knowledge in order to transfer it. Collaboration within an organization can be attained by sharing knowledge and doing continuous communication hence increasing distribution of know-how knowledge within that organization. Knowledge sharing in any firm helps in boosting and enriching the existing organizational business processes by increasing efficiency and effectiveness of business processes while removing redundant processes. This discipline promotes an integrative and collaborative approach to the creation, capture, use of an enterprise's knowledge assets and organization access. With the new economy gradually becoming more of knowledge-based economy, knowledge is potentially becoming a key asset for any organizational success amid other essential assets such as machineries, capital, materials, and properties (Senaji & Nyaboga, 2011; Senaji & Kiseli, 2016).

Geospatial has a long tradition and history in many developed countries, with many world-known companies involved in geodesy, surveying and photogrammetry, such as Leica and LH Systems currently (Baltsavias, 2009). The last decade many small companies have evolved,

mainly active in Geospatial and Spatial Information Sciences (SIS), including close-range photogrammetry, many of which are innovative and internationally active (Perez, 2008).

As such, Geospatial firms are gradually taking center stage in the knowledge-based economy. However, A GIS Needs Assessment report in Kenya (2017) indicated that in Kenya, 70 per cent of the counties were in need of GIS for some of their work, but the supply is low. Geospatial firms faces diminishing performance which is largely attributed to deficiency in organizational competency especially because the industry is highly volatile technologically. A report by the Geospatial Workforce Development Center (2016) supports the argument and stated that the geospatial industry goes through discontinuity due to rapid changes in technology, intense competition from transnational firms and changes in the business cycle. The rapid change in technology is far faster than competent employees can be produced to cope. Mwaniki (2017) further argued that most employees in Geospatial firms are technical specialists in their own career fields with limited or no training in other fields which are critical in enhancing performance of an organization. Jabbouri and Zahari (2014) argued that firms with better knowledge management should be less vulnerable to external changes and internal inefficiencies and should thus perform better because the structure provides the necessary systems and processes. In this line, this research strive to establish whether having knowledge management alignment strategy is the solution to the unsteady performance of the geospatial firms in Kenya considering the importance of geo data in the modern era.

1.1. Theoretical Review

The study was anchored on The McKinsey 7S Framework Model.The McKinsey 7S Framework is a management model developed by Peters and Waterman (1980) as a Way of groups having to include and incorporate businesses, teams and business units. The McKinsey 7S model involves seven independent factors which are: strategy, structure, systems, shared values, style, skills and staff (Peters & Waterman, 1980). According to the model, the seven factors have to be aligned and reinforced mutually in strategy implementation for any organization to achieve good performance. This model can be applied in various situations in an organization like aligning departments and processes during acquisition or merger, determining on the best way to implement a proposed strategy and prospecting on future changes within the organization. If something in the organization is not working well then it shows that there is inconsistency between some of the identified elements in the 7-S model. The model is hence used to identify the needs that should be realigned to improve performance of a firm through better strategy implementation or to maintain it when an organization is incorporating changes (Hanafizadeh & Ravasan, 2011). The theory is linked to objective one because it discusses knowledge management.

2. Empirical Literature

Kiseli and Senaji (2016) conducted research to establish the effect of knowledge management capabilities on competitive advantage in Kenya hospitality industry. The research mainly focused on how technology; KM infrastructure capability, social KM infrastructure capability, KM process capability and KM innovation agility affect competitive advantage of five star hotels in Kenya. In this study they applied a descriptive research design. Multiple regression analysis were

conducted in order to determine the effect of each variable on competitive advantage. According to the study, it was established that organizations use knowledge management to broaden the range of products without effecting to any cost increment.

Jelena, *et al.*, (2012) did a research to establish the impact of knowledge management on organization performance. This paper aimed at showing that organizations can enhance their performance by creating, accumulating, organizing and utilizing knowledge. Structural equation modeling was used to empirically test how knowledge management practices affect firm performance. The sample data comprised of 329 companies from Croatia and Slovenia which have a population of more than 50 employees. The results showed that organizational performance is affected positively by knowledge management practices measured through information technology, organizations and knowledge.

Lee and Lee (2007) examined the organizational associations of the capabilities, methods, together with performance of knowledge management. The study results provided strategic guidelines for the effective application of knowledge management by the firm. After analyzing the data collected, the study showed that the three variables are positively and significantly associated. One of the many inadequacies of this study is that it fails to address the link between competitive advantage and Knowledge Management Capabilities.

Similarly, Momeni *et al*., (2011) attempted to present a conceptual model for KM process capabilities (KMPC) and core competencies (CC) in Iran Khodro Company (IKCO). A total of 198 filled questionnaires were collected and analyzed. The research established that knowledge management process capabilities and core competencies are positively and significantly related. The study by Cooparat *et al*., (2010) that sought to examine and propose indicators of KMC in different knowledge management processes revealed that two main aspects of knowledge management capabilities for knowledge management effectiveness based on a review of related documents and other research articles. The first dimension was a resource-based perspective in way of technology, structure and culture. The second perspective was knowledge-based and covered inventiveness, intelligence, skills, motivation in addition to communication. The departure of this study from the current study is the fact that it fails to focus on knowledge management capabilities and competitive advantage in higher learning. Adeeko (2012) research focused on assessing KM (Capabilities) in the consultancy firms in the Nigerian construction industry. Resource-based capabilities like technology, culture and structure were deliberately assessed in those organizations using qualitative research techniques even though this research did not assess and highlight knowledge based capabilities hence making a gap that needs to be filled in. the results reveals that there exist significant such requirements in most of the surveyed firms. Borrowing from Momeni *et al*., (2011), the existing study will look at knowledge management and firm performance of Geospatial.

The study is also motivated by existing methodological, contextual and conceptual knowledge gaps in the previous studies on the concept of competence. Contextual knowledge gaps arise in previous studies which focused on developed economies outside Kenya. A study by Kiseli and Senaji (2016) established the influence of knowledge management capabilities on competitive advantage in the Kenya hospitality industry. The study concentrated on hospitality industry. Other studies focused on capability as a core competence without necessarily linking other forms

of core competence such as organizational resources, knowledge management and human resources. For instance, Tallon and Pinsonneault (2011) conducted a study to establish the competing perspectives on the link between strategic information technology alignment and organizational agility using IT as a mediating variable. Thus, the study hypothesized that:

H_{01}: *Knowledge Management has no statistical significant relationship with firm performance of Geospatial firms in Kenya.*

3. Material and Methods

This research adopted the principles of positivism in a descriptive research design to test the hypothesis of the theories using causal effect relationship.

3.1. Sampling

This study's target population includes 95 Geospatial companies in Kenya registered and approved by Institution of Surveyors of Kenya (ISK) where the unit of observation was the three strategic managers from 95 firms giving a total of 285 units of observations. Since the target population is small the study adopted a census survey to include all the population in the sample. The study will use both primary and secondary data. The primary data was collected from the direct responses from the top management of the Geospatial companies through the use of structured questionnaire. In this study Closed- ended or structure questionnaires was adopted to generate statistics in quantitative form for the research. The study used secondary data which was obtained from the annual financial statements of the tested companies.

3.2. Validity and Reliability of Research Instruments

The pilot testing of this study was conducted using 10% of the sample size. The questionnaire was administered to 8 managers from different Geospatial firms in Kenya which are not part of the sampled ones. Cronbach's alpha (α) was generated from internal consistency technique was applied to make sure that items achieves reasonably good internal consistency and measures the similar underlying consistently. The study tested for construct validity through factor analysis. A threshold for factor loadings is 40% (Jackson, 2009), that was adopted by this study. The factor analysis results (Table 1), indicated that the KMO were significant ($p<.05$). The resultant items had loadings greater than items (all loadings greater than threshold value of 0.50) and were used in subsequent analysis.

Table 1: Validity and Reliability of Research Instruments

n=208	Mean	loadings	KMO	Cronbach's Alpha
Knowledge Management			0.759	0.923
My organization acquires knowledge from external sources for developing new products	3.72	0.91		
My organizations obtains information from its research and development activities	3.87	0.67		
My organizations utilizes different types of knowledge for decision making	4.13	0.76		
In my organization knowledge is shared across the units through meetings and reports	3.78	0.89		
My organizations collects information on consumer needs and preferences	4.10	0.75		
There is knowledge management training program	4.20	0.80		
My organization strategic capabilities has pioneered and driven knowledge adoption and use	4.54	0.85		
Adequate time is committed to communication, knowledge exchange and learning	4.30	0.91		
There is clear , open and constructive feedback on performance from all supervisors to employees	4.21	0.82		
Leaders pool resources and expertise towards shared	4.44	0.62		
Firm Performance			0.709	0.914
Growth in profits in relation to your expectations	3.97	0.76		
Growth in profit level in relation to your Competitors	4.3	0.67		
Growth in sales in relation to your expectations	4.37	0.91		
Growth in sales in relation to your competitors	4.37	0.83		
growth in return on equity in relation to your expectations	4.5	0.58		
growth in return on asset in relation to your expectations	4.4	0.60		
increase in customers satisfaction index in relation to your competitor	4.46	0.97		
increase in customers loyalty in relation to your competitor	4.63	0.87		
increase in research and development in relation to your competitor	4.69	0.82		

3.3. Data Analysis and Processing

Descriptive and inferential statistics were used to analyze the secondary data. Descriptive statistics will include (mean and standard deviation). Inferential statistics on the other hand will include multiple regressions under the panel data framework and Pearson's product moment correlation analysis (Jackson, 2009). Multiple regression analysis with a view to establishing the effect of knowledge management of Geospatial firms in Kenya on these firms' performance. Analysis was conducted through with the support of SPSS version 20 software to generate tables, graphs and statistical parameter estimates. The multiple regression model equation displays the independent variables linear regression model against the dependent variable.

$$Y = \beta 0 + \beta_1 X_1 + + \varepsilon$$

Where:
Y= Firm Performance
X_1= Knowledge Management
β_0= Constant
β_1= Coefficient(independent variables)
ε = Error Term

4. Research Findings and Discussion

This section presents results of data analysis and hypotheses testing. About 255 questionnaires set were distributed to respondents. However, 234 questionnaires were retrieved. Therefore, this makes the response rate of 91.7%, though; out of the 234 collected questionnaires only 208 were found to be useful for further analysis, because 26 questionnaires were excluded from the analysis due to outlier problem.

4.1. Univariate analysis

Table 2 shows the results on data transformation. From the findings, firm performance (4.6) and while external operating environmental had the lowest mean of (4.30). The implication is that the core competencies. The standard deviations for all the variables were less than 1 indicating less variation in the responses. Finally, all independent variables and the dependent variable were normally distributed as shown in Table 2 below. Table 2 shows that the lowest correlation in this study was between knowledge management and firm performance (r=.518, p<0.01), indicating a strong positive relationship.

Table 2: Correlation results

	Mean	Std. Deviation	Skewness	Kurtosis	Firm Performance	Knowledge Management
Firm Performance	4.36	0.61	-1.81	1.23	1	
Knowledge Management	4.08	0.76	-1.67	2.14	.518**	1

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

4.2. Testing of Hypotheses

The sections below present the results for effects of knowledge management on financial performance Geospatial firms. Results in Table 3 showed that knowledge management had (R^2 = .268), meaning that, knowledge management, explain up to 26.8% of the changes in the financial performance (dependent variable). The ANOVA model showed model fitness for effect of knowledge management on financial performance was statistically significant (F = 75.514, ρ=.000). Thus, the model was fit to predict financial performance using knowledge management. The regression coefficients in Table 4.25 established the mean change in financial performance for one unit of change in the knowledge management.

Table 3: Regression results for Effect of Knowledge Management on Financial Performance

	Unstandardized Coefficients		Standardized Coefficients		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	2.028	0.236		8.594	0.000
Knowledge management	0.502	0.058	0.518	8.690	0.000
Model Summary					
R	0.518				
R Square	0.268				
Adjusted R Square	0.265				
Std. Error of the Estimate	0.628				
ANOVA					
F	75.514				
Sig.	0.000				

a Dependent Variable: firm performance

Hypothesis 1(Ho1) stated that there knowledge management has no statistical significant relationship with firm performance of Geospatial firms in Kenya. Findings showed that knowledge management had coefficients of estimate which was significant basing on $\beta_1 = 0.518$ (p-value = 0.000 which is less than $\alpha = 0.05$). The null hypothesis was thus rejected and it was concluded that knowledge management had a significant effect on financial performance Geospatial firms. This suggested that there was up to 0.518 unit increase in knowledge management for each unit increase in firm performance of Geospatial firms in Kenya. The study outcomes reiterated assertion by Zack (2006) which stipulated that the achievement of maximum organizational performance within a knowledge economy was contingent on the success of Knowledge management processes. The findings also echoed reviews by Zack et al and Marqués & Simón which acknowledge knowledge management initiatives to be essential in achieving competitive edge among firms in addition to playing a fundamental role in the success and survival of any form in a cut throat business environment. By and large the findings are also congruent with Hayfa. Abuaddous, Abdullah , Al Sokkar (2018) who stated that Knowledge is widely viewed as a fundamental asset in any establishment. Knowledge management is therefore implemented in several organizations to improve performance. As such the positive influence of knowledge management cannot be undermined and several studies have established it to be a significant contributor to business growth. The research outcomes also agree with Bogner and Bansal (2007) who identified the capacity to advance new Knowledge is an essential Knowledge Management system approach that impacts firm performance.

5. Conclusion and Recommendations

A knowledge management System makes it possible for a firm to comprehensively manage knowledge for its personnel to obtain, generate and leverage available knowledge to transform and participate in a competitive business. Besides Knowledge Management enable firms to gain insight into innovative practices to improve and bolster their products and services in line with client and customer expectations, moreover with sufficient knowledge exchange, firms are able maintain competitive advantage, a great indictor of firm performance.

In line with the findings of this study, certain elements of firm performance are linked with Knowledge management. For instance the success of a firm is measured in its growth in profit level in relation to the competitors, increase in customer satisfaction index as well as increase in research and development in relation to the competing firms. It is based on these indicators on firm performance that the review iterates the significant role played by Knowledge management systems and practices. The results imply that organizational Knowledge acts as a strategic resource and an integrating competence for alternative resources and is as such very critical in the attainment of sustainable competitive advantage in addition to contributing to an organization's transformation process since it operates and learns from the process.

Indeed in the contemporary business environment, knowledge is regarded a fundamental asset in any institution. Many organizations are therefore on the fore front of implementing Knowledge Management so as to achieve optimum firm performance. The review has demonstrated the positive outcomes of knowledge management and certain practices on firm performance. By and large it can be deduced that knowledge management is an essential driver for firm performance and for establishment or business to undergo growth and advancement, it is imperative to invest in effective Knowledge Management systems.

The study has shown that there is need for further research on other relationship between organizational knowledge management and firm performance of geospatial firms in Kenya. The study suggests further research to be carried out on the other knowledge management and firm performance of geospatial firms in Kenya not captured in the current study.

6. References

Agha, S., Alrubaiee, L., & Jamhour, M. (2011).Effect of core competence on competitive advantage and organizational performance. *International Journal of Business and management*, *7*(1), 192.

Hanafizadeh, P., & Ravasan, A. Z. (2011). A McKinsey 7S model-based framework for ERP readiness assessment. *International Journal of Enterprise Information Systems (IJEIS)*, *7*(4), 23-63.

Jabbouri, N. I., & Zahari, I. (2014).The role of core competencies on organizational performance: an empirical Study in the Iraqi Private Banking Sector. *European Scientific Journal, ESJ*, *10*(10).

Jarzabkowski, P., Balogun, J., & Seidl, D. (2007).Strategizing: The challenges of a practice perspective. Human relations, 60(1), 5-27.

Kiseli, J. M., Senaji, T. A., &Eng, R. (2016).Effect of knowledge management capabilities on competitive advantage in the Kenya hospitality industry: The case of five star hotels in Kenya. *International Academic Journal of Human Resource and Business Administration*, *2*(2), 106-129.

Mwaniki, W.H., (2017). Factors affecting strategy implementation in the Geospatial industry. A study of Ramani Geosystems Group.*Unpublished MBA Research-USIU-Africa*.

Perez, F. (2008). Geomatics for emergency management purposes: design of a global geodata base (Doctoral dissertation, Politecnico di Torino).

Senaji, T., & Nyaboga, A. B. (2011). Knowledge management process capability: operations strategy perspective. *International Journal of Management and Information Systems*, *15*(3), 147.

Tallon, P.P. & Pinsonneault, A. (2011) Competing Perspectives on the link between strategic information technology alignment and organizational Agility: insights from a mediation model.*MIS Quarterly*, 35, pg. 463-486

Trinh-Phuong, T., Molla, A., &Peszynski, K. (2012). Enterprise Systems and Organizational Agility:A Review of the Literatureand Conceptual Framework. *Communications of the Association for Information Systems, 31*.

Waterman Jr, R. H., Peters, T. J., & Phillips, J. R. (1980).Structure is not organization. *Business horizons*, *23*(3), 14-26.

Peters, T. .& Waterman, R. Jr (1980). The Mckinsey's 7s Framework. *Business Horizons*, 80(23), 14-26.