Knowledge Strategy and Performance of Manufacturing Firms in Kenya

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Abstract

Organizational knowledge is increasingly gaining attention in strategic management as a source of competitive advantage and superior performance. However, few empirical studies have examined the relationship between knowledge strategy and organizational performance. To enhance competitiveness and performance, manufacturing firms in Kenya are managing knowledge as a resource. However, past studies in Kenya have not examined the relationship between knowledge strategy and performance of the firms. The objective of this study was to determine the effect of knowledge strategy on performance of manufacturing firms in Kenya. A stratified sample of 266 firms representing twelve sub-sectors of manufacturing sector was used. Primary data was collected from 184 firms using structured questionnaire administered to the managers of the firms. The results revealed positive and significant relationship between knowledge strategy and performance. The paper concludes that higher levels of knowledge strategy would lead to improved organizational performance.

Keywords: Knowledge strategy, Knowledge exploration, Knowledge exploitation, Organizational performance, Manufacturing sector, Kenya

1. Introduction

Strategic management literature suggests that organizational knowledge is a source of sustainable competitive advantage and superior performance. This perspective has led to the development of the knowledge-based view of the firm, which is an extension of the resource-based view of the firm (Choo & Bontis, 2002). Rather than seeing organizations as systems that integrate the use of all kinds of physical, financial and human resources, knowledge-based view of the firm emphasizes the organization as a site for the development, dissemination and use of knowledge and other forms of intellectual resources to create competitive advantage. Thus, knowledge-based view of the firm holds that performance differences between organizations are a result of their differing capabilities in creating and utilizing knowledge.

Knowledge strategy is a relatively new concept in knowledge literature. Knowledge strategy refers to the overall approach an organization intends to take regarding the focus of its resources on two knowledge domains: knowledge exploration and knowledge exploitation (March, 1991). Thus, knowledge strategy describes a firm's strategic choice on whether the firm focuses more of its resources on knowledge exploration, which deals with the creation, discovery or acquisition of new knowledge; or knowledge exploitation, that is incremental refinement or reuse of existing knowledge. Knowledge exploration is more innovation-oriented and knowledge exploitation aims at attaining efficiency (March, 1991; Levinthal & March, 1993).

Organizational ambidexterity, joint pursuit of a well-balanced combination of knowledge exploration and exploitation is essential for superior performance (Bierly & Daly, 2007; March, 1991; Uotila, Maula, Keil, & Zahra, 2009).

Despite the theoretical link between knowledge strategy and organizational performance, empirical studies testing the relationship are scanty. Further, the few empirical studies that have been conducted to examine the linkage between knowledge strategy and organizational performance have been conducted in developed countries. Whereas manufacturing firms in Kenya are managing organizational knowledge as a resource for enhancing competitiveness and performance (Cheruiyot, Jagongo, & Owino, 2012; Mwihia, 2008) past studies have not examined the effect of knowledge strategy on the performance of the firms. To contribute to the understanding of the linkage between knowledge strategy and organizational performance in a developing country, this study sought to determine the effect of knowledge strategy on performance of manufacturing firms in Kenya.

The rest of the paper is organized as follows: The second section reviews related literature and the research hypothesis. The third section presents the research methodology which describes the population, sample, data collection, measurement of variables and data analysis techniques. The fourth section discusses the results. The fifth section presents conclusions and finally, the sixth section presents the recommendations of the study.

2. Literature Review

Knowledge can be considered the most strategic resource and the ability to acquire, integrate, share and apply it the most important capability for sustaining competitive advantage (Choo & Bontis, 2002). Knowledge literature suggests that organizations need to balance between knowledge exploration and exploitation to achieve superior performance (He & Wong, 2004; Tushman & O'Reilly, 1996). March (1991) argues that returns from knowledge exploitation strategy are more predictable and closer in time, while exploration is risky and uncertain but may promote the firm's survival and success in the long run. Knowledge enhances a firm's effectiveness and efficiency which are crucial in improving performance. Teece (2000) argues that companies having superior knowledge are able to coordinate and combine their traditional resources and capabilities in new and distinctive ways, providing more value for their customers than their competitors. Knowledge also enhances a firm's innovative capability in products and processes required to enhance customer satisfaction. Indeed, a firm that effectively uses its knowledge assets knows more about its customers, products, technologies, markets and their linkages. This enables a firm to create competitive advantage and improve its performance.

In spite of the theoretical link between knowledge strategy and performance, empirical studies examining the relationship between knowledge exploration and exploitation, and performance have yielded inconsistent results. Whereas some studies (Siren, Kohtamaki & Kuckertz, 2012; Venkatraman, Lee, & Iyer, 2007) did not find a direct relationship between knowledge strategy and organizational performance, other studies (Auh & Menguc, 2005; Bierly & Daly, 2007; He & Wong, 2004; Lubatkin, Simsek, Ling & Veiga, 2006) reported direct positive relationship between knowledge strategy and organizational performance.

In a cross-sectional survey of 206 manufacturing firms in Singapore examining the effect of joint pursuit of knowledge exploration and exploitation on sales growth performance, He and Wong (2004) found that the interaction between knowledge exploration and exploitation strategies was positively related to sales growth. They also found that relative imbalance between explorative and exploitative innovation strategy was negatively related to sales growth rate. Auh and Menguc (2005) conducted a survey study of 260 Australian manufacturing firms to test the moderating role of competitive intensity on the relationship between knowledge exploration and exploitation, and firm performance; the results showed existence of different impacts of exploration and exploitation on firm performance, moderated by strategic type. Exploration had a greater effect than exploitation on firm performance for prospectors, while exploitation exerted a greater impact than exploration for defenders.

Lubatkin et al. (2006) tested the effect of joint pursuit of knowledge exploration and exploitation on firm performance using cross-sectional survey data from 139 small and medium-sized firms in New England, USA. They found that the joint pursuit of an exploitative and exploratory orientation positively affected performance. Bierly and Daly (2007) conducted a survey examining the relationship between knowledge strategy (exploration or exploitation) and firm performance, and the possible moderating role of external environmental variables using a sample of small manufacturing firms in USA. The study found that knowledge exploration and exploitation are not significant predictors of firm performance. Using regression model, the results indicated that knowledge exploration and exploitation explained only 8% of the variance in performance.

Bierly and Daly's study also found that the relationship between exploration and performance was positive but weaker than prior studies had suggested. The findings revealed that knowledge exploration had a stronger influence on performance than exploitation; and exploitation was positively correlated with performance up to a point, after which they were negatively correlated. In view of the theoretical arguments and prior empirical evidence, the following hypothesis was proposed:

H1 Knowledge strategy has a positive effect on organizational performance.

3. Methodology

3.1 Population and Sample

Data aggregation and analysis was done at firm level. Thus, the population of this study comprised all manufactures firms in Kenya. There were a total of 655 manufacturing firms at the time of the study which were members of Kenya Association of Manufacturers (KAM, 2014). The firms are classified into 12 sub-sectors of manufacturing on the basis of the products they manufacture. The sub-sectors are: Food, Beverages and Tobacco; Metal and Allied; Leather and Footwear; Chemical and Allied; Textile and Apparels; Plastics and Rubber; Paper and Board; Timber, Wood and Furniture; Pharmaceutical and Medical Equipment; Motor Vehicle and Accessories; Energy, Electricals and Electronics; and Building, Mining and Construction Sector. Given the large size of the population, a sample was used for this study. Considering the desired confidence level (95% confidence level) and the margin of error (set at 5% in this study), a sample of 266 manufacturing firms was used for the study. To select the 266 firms which constituted the sample units, disproportionate stratified random sampling was used to ensure the sample was representative of the 12 sub-sectors of manufacturing to enhance generalizability of the results.

3.2 Data Collection

To achieve the objective of this study, primary data was collected. In gathering the data, questionnaire was used as the instrument for data collection. The questionnaire with closed ended Likert-type scales was developed to measure the respondents' perceptions of the existence and magnitude of knowledge strategy and organizational performance in their organizations. Since the unit of analysis in this study was the organization, one respondent was targeted in each firm. The respondents were the executive officers of the firms who included chief executive officers, production managers, human resource managers and administrators. The managers were chosen as the respondents because they were considered to be better informed about organizational characteristics and processes. The survey took a total of four months from July to November 2014.

3.3 Measures of Variables

The independent variable in this study, knowledge strategy was measured using the widely used dimensions of knowledge exploration and exploitation (Bierly & Daly, 2007; March, 1991; Miller, Bierly, & Daly, 2007). Informed by the literature, five-point Likert-type response scales (from 1 = strongly disagree to 5 = strongly agree) were constructed with items on knowledge exploration and exploitation. Respondents were asked to indicate how accurately each statement described their firms.

The dependent variable, organizational performance is viewed as a multidimensional concept (Auh & Menguc, 2005) and researchers have adopted different perspectives in measuring performance. Organizational performance was measured using financial performance in terms of return on assets and return on equity, and market performance in terms of market share or sales growth. The measures were used because of their common usage in measuring organizational performance and simplicity to estimate. The dimensions of organizational performance can be measured using objective or subjective self-reported measures. Although the use of objective measures would be preferred, obtaining accurate financial data is often a problem particularly in privately held firms. Thus, where objective measures of performance are unavailable or difficult to gather especially for private firms due to confidentiality, a researcher might consider using subjective perceptual data (Atalay, Anafarta, & Sarvan, 2013; Dess & Robinson, 1984). Dess and Robinson argued that self evaluations could serve as reliable alternative indicators of performance; and evidence suggests that executive officers' self-reports of performance significantly correlate with objective measures of firm performance. Since most of the manufacturing firms in Kenya are private firms and hence absence of publicly available objective data, this study used self-reported perceptual data on financial and market performance of the firms. Five-point Likert-type response scales (from 1 = lowest 20% to 5 = Top 20%) were developed with items on financial and market performance, and respondents were asked to compare their firms with key competitors on the items.

Past research work (Gopalakrishnan & Bierly, 2006) has shown that age and size influence organizational processes. Thus, age and size of the organizations were controlled for in this study. Age was measured using the number of years the organization has been in operation. Size of the organization was measured using the number of permanent employees.

3.4 Data Analysis

Descriptive statistics specifically, the mean and standard deviation were used to describe knowledge strategy and performance of the firms. Pearson's product-moment correlation was used to examine how the dimensions of the independent variable, knowledge strategy were related with the dependent variable, organizational performance. To test the hypothesis which predicted that knowledge strategy has a positive effect on organizational performance, multiple regression analysis was used. Organizational performance was regressed on the dimensions of knowledge strategy that is, knowledge exploration and knowledge exploitation. Composite scores of knowledge exploration, knowledge exploitation, and organizational performance were used in the analysis. The following multiple regression model was developed:

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

Where: Y is the dependent variable (organizational performance), β_0 is the Y intercept, β_1 and β_2 are the regression (beta) coefficients, X_1 is knowledge exploration, X_2 is knowledge exploitation and Ɛ is regression error term.

4. Results and Discussion

4.1 Response Rate

The unit of analysis in this study was the organization as each organization has unique sets of knowledge strategy and organizational performance. Questionnaires were distributed to 266 companies. After follow-ups, questionnaires from 184 companies were completed and returned in a form usable for analysis, which constituted a response rate of 69 percent. This response rate was considered good (Bryman & Bell, 2007) since the respondents were managers who could be too busy to complete questionnaires.

4.2 Reliability and Validity

4.2.1 Test of Reliability

The research scales were examined to determine their reliability. This was done using Cronbach's alpha coefficient. The results of the analysis presented in Table 4.1 show that all the research constructs had alpha coefficients of above 0.7, except the coefficient for knowledge exploitation which was slightly low (0.649). The overall Cronbach's Alpha coefficient was 0.935. Overall, the instrument met the recommended threshold of 0.7 (Nunnally & Bernstein, 1994) and thus was considered reliable.

4.2.2 Test of Validity

Factor analysis was conducted to test construct validity. Factor analysis was used to check the extent to which each item in the scales contributed to the respective factor. Exploratory factor analysis for items in knowledge strategy scale was conducted. Principal component analysis extraction method with varimax rotation method was used; and validity was assessed by examining the factor loadings to see if the items in the scale loaded highly on the construct. The rotated component matrix in Table 4.2 shows that all the factor loadings of knowledge strategy items range from 0.604 to 0.727. The loadings met the recommended cut-off of 0.4 (Hair, Black, Babin, Anderson & Tatham, 2011) and were considered sufficiently high. The factors account for 45.604 percent of the variance in the construct. Thus, all the factors were retained for analysis. In conducting factor analysis for organizational performance, principal component analysis and varimax rotation was used to check the extent to which each item in the scales contributed to the respective factors. The rotated component matrix in Table 4.3 shows that all the factor loadings were sufficiently high and met the threshold of 0.4. The factors account for 61.253 percent of the variance in the construct. All the factors were retained for analysis.

4.3 Descriptive Statistics of Study Variables

4.3.1 Knowledge Strategy

The study sought to describe knowledge strategy of the firms. Respondents were asked to indicate the extent to which they agreed that the statements on the items of dimensions of knowledge strategy described their firms. The responses were analyzed using mean scores and standard deviations.

Higher mean scores indicated strong agreement on the item and lower mean score implied strong disagreement with the statements. Table 4.4 presents the results of the analysis.

Table 4.4: Mean, Standard Deviation for Measures of Knowledge Strategy

Knowledge strategy items	*N*	Mean	Std. Deviation
Knowledge Exploration		**3.84**	
We frequently experiment with radical new ideas	183	3.82	.82
At our firm employees frequently come up with creative ideas that challenge conventional ideas	183	3.79	.82
Compared to our principal competitors, a high percentage of our firm's sales come from new products launched within the past 3 years	181	3.84	.86
We are usually one of the first firms in our industry to use new breakthrough technologies	182	3.90	.84
Knowledge Exploitation		**4.11**	
At our firm a strong emphasis is placed on improving efficiency	182	4.14	.77
Our firm excels at refining existing technologies	184	4.07	.77
We frequently adjust our procedures, rules and policies to make things work better	184	4.10	.74
Overall		**3.95**	

As shown in Table 4.4, the mean score for the knowledge exploration dimension was 3.84. The item with the highest score was 'we are usually one of the first firms in our industry to use new breakthrough technologies (*M* = 3.90, *SD* = 0.84); the item with the lowest score was 'at our firm employees frequently come up with creative ideas that challenge conventional ideas' (*M* = 3.79, *SD* = 0.82). The mean for knowledge exploitation dimension was 4.11. The item with the highest score was 'at our firm a strong emphasis is placed on improving efficiency' (*M* = 4.14, *SD* = 0.77); the item with the lowest score was 'our firm excels at refining existing technologies' (*M* = 4.07, *SD* = 0.77). The overall mean score for knowledge strategy was 3.95. These results indicate that the respondents strongly agreed with the statements regarding knowledge strategy in their organizations. These results were interpreted to mean that the firms practice knowledge strategy that is, both knowledge exploration and knowledge exploitation strategies to a great extent. However, the organizations exhibit slightly more of knowledge exploitation (*M* = 4.11) than knowledge exploration (*M* = 3.84).

The findings of this study support the findings of past studies (Bierly & Daly, 2007; March, 1991; Utiola et al., 2009) which found that the two knowledge strategies- knowledge exploration and exploitation are complementary and a firm can pursue both strategies simultaneously, supporting the ambidextrous view that firms need to balance between knowledge exploration and exploitation (March, 1991). The results are also consistent with the findings of past studies in Kenya (Mwihia, 2008; Cheruyoit et al., 2012) which found that firms in Kenya were managing knowledge as a resource to enhance their effectiveness and efficiency. This study adds to these prior studies by providing understanding that manufacturing firms in Kenya practice knowledge exploration and knowledge exploitation strategies.

4.3.2 Organizational Performance

The study sought to describe performance of manufacturing firms in Kenya. Respondents were asked to estimate how their firms' performance ranked compared to other firms in their industry on each dimension of performance. The responses were analyzed using mean scores and standard deviations. Higher mean scores indicated strong agreement on the item and lower mean scores implied strong disagreement. Table 4.5 presents the results of the analysis.

Table 4.5: Mean, Standard Deviation for Measures of Organizational Performance

Organizational Performance	*N*	Mean	Std. Deviation
Financial performance		**3.82**	
Return on assets	181	3.83	.87
Return on equity	181	3.81	.95
Market performance		**3.76**	
Market share	184	3.77	.91
Sales growth	184	3.76	.91
Overall Mean		**3.79**	

As shown in Table 4.5, the mean score for financial performance dimension was 3.82. The item 'return on assets' had a higher mean score (M = 3.83, SD = 0.87) and the item 'return on equity' had a slightly low mean score (M = 3.81, SD = 0.95). The score for market performance dimension was 3.76. The item 'market share' had a higher mean score (M = 3.77, SD = 0.91) and the item 'sales growth' had a slightly low mean score (M = 3.76, SD = 0.91). The overall mean for organizational performance was 3.79. This mean score indicates that the respondents estimate the performance of their firms to rank in the top 40% in their respective industries.

4.4 Correlation Analysis

The study sought to examine how the dimensions of knowledge strategy (knowledge exploration and knowledge exploitation) and organizational performance were related. The results of the analysis are presented in table 4.6.

Table 4.6: Correlation Matrix for Knowledge Strategy and Organizational Performance

		Knowledge Exploration	Knowledge Exploitation	Organizational performance
Knowledge exploration	Pearson Correlation	1		
	Sig. (1-tailed)			
	N	180		
Knowledge exploitation	Pearson Correlation	.581**	1	
	Sig. (1-tailed)	.000		
	N	179	182	
Organizational performance	Pearson Correlation	.367**	.258**	1
	Sig. (1-tailed)	.000	.000	
	N	177	179	181

**. Correlation is significant at the 0.05 level (1-tailed).

The correlation results in Table 4.6 show a positive and significant relationship between knowledge exploration and organizational performance (r = 0.367, p < 0.05). The results also show that the relationship between knowledge exploitation and organizational performance is positive and significant (r = 0.258, p < 0.05). The correlation results reveal that there is a positive relationship between both dimensions of knowledge strategy, knowledge exploration and exploitation, and organizational performance. This implies that higher levels of knowledge exploration and knowledge exploitation are associated with higher levels of organizational performance. Further, the correlation results show that there was a positive relationship between knowledge exploration and knowledge exploitation (r = 0.581, p < 0.05). These results support the argument that the two knowledge strategies are complementary in organizations and organizations can pursue both strategies simultaneously (Bierly & Daly, 2007; Tushman & O'Reily, 1996).

4.5 Test of Hypothesis

The testing of hypothesis H1 concerning the effect of knowledge strategy on organizational performance was done using multiple regression. Organizational performance was regressed on the two dimensions of knowledge strategy that is, knowledge exploration and knowledge exploitation. To remove any possible influence of control variables, the variables (age and size) and the dimensions of knowledge strategy were entered as blocks. The two control variables were entered in the first model and knowledge exploration and exploitation were entered in the second model. The results of the analysis are presented in Table 4.7.

Table 4.7: Multiple Regression Results

Variable	Model 1	Model 2
Constant	3.208*	1.680*
Age	.156*	.143*
Size	.116	.056
Knowledge exploration		.305*
Knowledge exploitation		.068
R^2	.047*	.165*
F	4.254	8.473
R^2 Change		.118*
F Change		12.147*

*$p < .05$

As shown in Table 4.7, Model 1 results indicate R Squared of 0.047 which means 4.7% variation in organizational performance is explained by variation in the two control variables, age and size. In Model 2 after knowledge exploration and exploitation were added, the R Squared increased to 0.165 which means that 16.5% variance in organizational performance is explained by the control variables (age and size) and knowledge strategies (knowledge exploration and exploitation) . This indicates that inclusion of knowledge exploration and exploitation explained more variance in organizational performance compared with the model with the control variables only as dependent variables. Model 2 indicates that the R Squared change value is 0.118. This means addition of knowledge exploration and knowledge exploitation explains an additional 11.8% of the variation in organizational performance. The results indicate that change in R squared is statistically significant (F change = 12.147, $p < 0.05$). Further, the ANOVA results indicate the model as a whole, which includes both control variables and knowledge strategy is significant ($F = 8.473$, $p < 0.05$). Thus, the results indicate that knowledge strategy has a significant effect on organizational performance, supporting hypothesis H1, that knowledge strategy has a positive effect on organizational performance. Regarding the importance of the two variables in explaining variation in organizational performance, standardized coefficients of model 2, indicate that knowledge exploration has greater and significant effect ($\beta = 0.305$, $p < 0.05$) on organizational performance than knowledge exploitation strategy ($\beta = 0.065$, $p > 0.05$) which is not significant. Thus, the results show that only knowledge exploration had a significant effect on organizational performance; and the effect of knowledge exploitation was not significant. However, in spite of these findings, descriptive statistics results revealed that manufacturing firms in Kenya put more emphasis on knowledge exploitation (Mean score = 4.11) than knowledge exploration (Mean score = 3.84).

The findings of this study is consistent with the findings of Bierly and Daly's (2007) and Lubatkinet al.'s (2006) studies, which reported that joint pursuit of knowledge exploration and exploitation was positively related with organizational performance. The findings also concurs with the finding of He and Wong (2004) who found that pursuit of both knowledge exploration and exploitation was positively related with sales growth performance. The positive coefficients for both knowledge exploration and knowledge exploitation suggest that those firms that have higher capability to simultaneously pursue knowledge exploration and exploitation will achieve higher levels of organizational performance. These findings support the suggestion (March, 1991; Tushman & O'Reilly, 1996) that organizations need to develop capabilities for knowledge exploration and exploitation to enhance performance. Regarding the individual effects of knowledge exploration and knowledge exploitation on organizational performance, the findings of this study show that knowledge exploration has a greater influence than knowledge exploitation on organizational performance. This finding is consistent with the findings of prior studies (Bierly & Daly, 2007) which also found that knowledge exploration had a stronger influence on performance than knowledge exploitation, and knowledge exploitation and performance were positively related up to a point after which they were negatively correlated.

The regression results of this study show that 11.8% of variation in organizational performance can be explained by variation in the dimensions of knowledge strategy. This low explanatory power can be explained by the fact that knowledge strategy is a relatively new concept (Bierly & Daly, 2007) which manufacturing firms in Kenya may have just started to implement and hence knowledge strategies have not started to yield high performance outcomes. Another possibility is that some of the firms in the study sample are small and therefore lack adequate resources required to adequately invest in knowledge exploration and knowledge exploitation to achieve high performance.

The results of this study also revealed that the effect of knowledge exploitation on organizational performance was positive but not significant. A possible explanation of the insignificant effect of knowledge exploitation on organizational performance may be that the firms may have developed capabilities in knowledge exploration and have not excelled in knowledge exploitation to enhance their efficiencies required to enhance performance. Further, the result that knowledge exploration had a positive and significant effect on organizational performance while knowledge exploitation had a positive but insignificant effect on organizational performance may be explained by the argument that knowledge exploration is innovation oriented, which may have positive effect on competitive advantage and performance than knowledge exploitation that focuses on attaining efficiency (March, 1991; Levinthal & March, 1993; Bierly & Daly, 2007).

5. Conclusion

The findings reveal a positive relationship between the dimensions of knowledge strategy, knowledge exploration and exploitation, and organizational performance, supporting the hypothesis of the study. Further, the findings show that knowledge exploration had positive and significant effect on performance, while knowledge exploitation strategy had a positive but insignificant effect on performance.

The findings of the study lead to the following conclusion: There is a linkage between knowledge strategy and performance of manufacturing firms in Kenya; and knowledge strategy is positively related to the performance of the firms. The findings confirm that knowledge strategy is crucial in enhancing organizational performance. Hence, higher levels of knowledge strategy would lead to improved organizational performance.

The finding that knowledge strategy has a positive effect on organizational performance empirically confirms the knowledge based view of the firm. The theory views the organization as the site for the development, dissemination and use of knowledge; and posits that development of stocks of knowledge and utilization of the knowledge creates competitive advantage and superior organizational performance. This study confirms the prediction of the theory by showing that firms with higher knowledge exploration and exploitation achieved higher performance.

6. Recommendations

This study has implications to management policy and practice. First, the study confirmed a positive linkage between knowledge strategy and organizational performance. This implies that pursuit of knowledge exploration and exploitation is essential for superior performance. Thus, to create competitive advantage and improve organizational performance in the increasingly competitive environment, firms need to focus resources on knowledge exploration and exploitation. Further, the study revealed that knowledge exploration has a greater and significant influence on organizational performance than the influence of knowledge exploitation on organizational performance. However, descriptive statistics revealed that manufacturing firms in Kenya put more emphasis on knowledge exploitation than knowledge exploration. Thus, firms need to focus resources to enhance knowledge exploration activities.

This study is one of the most comprehensive studies on knowledge management in Kenya using a large and cross regional sample of manufacturing companies operating in major towns in Kenya. However, the study has some limitations. This study adopted a cross-sectional survey. Such studies have limitations on providing explanations on the linkage between variables. A longitudinal study could increase understanding of the linkage between knowledge strategy and organizational performance. Thus, future research should adopt longitudinal research designs in data collection to enhance understanding of the relationship between the variables.

The respondents of this study were executive officers and single respondents were used to collect data. To minimize the effect of single respondent bias, future research can use multiple respondents including executive officers and middle managers. In this study, knowledge strategy was conceptualized using the widely used conceptualization in terms of knowledge exploration and knowledge exploitation. Future research should broaden the conceptualization of knowledge strategy to include other aspects such as internal and external sourcing of knowledge.

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Tables

Table 4.1: Reliability Statistics

Overall Reliability Statistics	
Cronbach's Alpha	Number of Items
.935	68

Cronbach's Alpha Coefficients for the Measurement Scales for the Constructs

Variable	Dimension measured	Number of items	Alpha (α)
Knowledge strategy	Knowledge exploration	4	0.745
	Knowledge exploitation	3	0.649
Organizational performance	Financial performance	2	0.788
	Market performance	2	0.757

Table 4.2: Rotated Component Matrix for Measures of Knowledge strategy

Knowledge strategy items	Component 1
At our firm employees frequently come up with creative ideas that challenge conventional ideas	.727
Our firm excels at refining existing technologies	.691
We are usually one of the first firms in our industry to use new breakthrough technologies	.689
We frequently experiment with radical new ideas	.685
Compared to our principal competitors, a high percentage of our firm's sales come from new products launched within the past 3 years	.674
At our firm a strong emphasis is placed on improving efficiency	.651
We frequently adjust our procedures, rules and policies to make things work better	.604

Extraction Method: Principal Component Analysis

Table 4.3: Rotated Component Matrix for Measures of Organizational Performance

Organizational performance items	Component 1
Return on equity	.831
Market share	.818
Return on assets	.754
Sales growth	.723

Extraction Method: Principal Component Analysis