



STRATEGIC MEASUREMENT SYSTEM'S BREADTH AND PERFORMANCE OF MEDIUM SIZED SERVICE FIRMS IN KENYA

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ABSTRACT: *Strategic measurement systems are essential management tools for generating information that stimulate learning and drives desired organizational adaptations. However, the effectiveness of any measurement system is partly dependent on its design, organizational structure, environment, technology and firm strategy. The study adopted a descriptive research design to investigate the effects of the breadth of strategic measurement system on performance of medium sized service firms in Kenya. The target population of this study was 2,039 medium sized service firms registered by Nairobi City County, Kenya and the sample size was 323 firms selected by stratified random sampling design. Standardized questionnaire was used to collect primary data from the chief executive officers of the sampled firms. The study established that the breadth of strategic measurement system is a statistically significant positive predictor of performance of medium sized service firms in Kenya. The study also showed that even though both financial and non-financial measures were used, financial measures were the most frequently used indicators. Nearly half (45%) of the firms were not measuring learning and growth perspectives and one-third (31%) of the firms do not measure customer perspective indicators. Hence, strategic measurement systems mostly used by medium sized service firms in Kenya do not have adequate breadth and are not comprehensive enough to elicit strategic outcomes. The firms focus more on measuring short-term objectives (profitability and internal efficiency) with little attention on strategic goals (such as customer relations, learning and growth). The study recommends expansion of the systems to include more non-financial measures such as customer relations and learning and growth indicators.*

KEYWORDS: Breadth, Strategic Measurement System, Performance, Medium sized Firms, Service Firms



1.0 INTRODUCTION

To both for profit and non-profit organizations, strategic measurement systems are essential management tools for operationalizing firm strategy. The systems provide measures used to generate information that guides strategic decision-making. Specifically, strategic measurement systems provide information that stimulate learning and drives desired organizational adaptations (Yuliansyah & Khan, 2015). The systems are thus, critical in developing unique organizational capabilities for sustainable competitive advantages and enhanced overall organizational performance (Kuuluvainen, 2012). However, use of strategic measurement systems is not always guaranteed to show significant positive impact on firm performance (Gerrish, 2014a; Gerrish, 2014b; Heinrich, 2011; Hvidman & Andersen, 2013). The effectiveness of any measurement system is partly dependent on its design, organizational structure, environment, technology and firm strategy (Chenhall, 2003). Research in the field of strategic management show that most of the traditional strategic measurement systems models in use such as the balanced score card, total performance score card and sustainable performance measurement systems were developed within the framework of large manufacturing firms in developed countries (Garengo & Bernardi, 2007; Ferreira, Shamsuzzoha, Toscano, & Cunha, 2012; Searcy, 2011). Therefore, the accrued benefits from applying these models may not be directly transferable to small and medium sized service firms in developing countries.

In Kenya, medium sized service firms are major players in economic development. They are important in fostering economic growth, employment creation, income generation, poverty reduction and industrialization (Fatoki, 2014). However, according to the Kenya National Bureau of Statistics (KNBS), more than 90% of medium sized service firms fail to transition to large firms as expected (KNBS, 2016). This low transition rate among the medium sized service firms has been linked to use of inappropriate designed performance measurement systems, which undermines development of firm strategic capabilities (Jamil & Mohamed, 2011). A study by Chimwani, Nyamwange and Robert (2013) observes that most small and medium sized enterprises in Kenya prefer use of short-term operational and financial measures. Use of long-term non-financial measures is not give adequate attention to



generate the necessary strategic information for successful deployment of competitive strategies for firm growth and sustainability.

Further, a study by Garengo and Bernardi (2007b) in Italy, attributed lack of sustainable competitive advantage among medium sized firms to focus on measuring operational and technological factors at the expense of strategic measures. In Malaysia, a study by Jamil and Mohamed (2011) linked low GDP contribution by the medium sized firms to over-reliance on short-term performance measures. In South Africa, a study by Maduekwe and Kamala (2016) observed that small and medium sized firms have high failure rates due to over-reliance on financial performance measures with little regard to the non-financial performance measures. Similarly, a study by Georgise, Thoben and Seifert (2013) in Ethiopia showed that medium sized manufacturing industries are less likely to have formal performance measures and are still largely using financial and productivity performance measures while ignoring strategic measures.

In Kenya, a study by Chimwani, et al. (2013) established that the most common performance measures used by small and medium sized manufacturing firms in Nairobi are financial in nature with measures for internal business process, innovation, and learning being less obvious. These limit the firms' from reaching their full strategic potential. These studies despite being very insightful only focused on manufacturing firms with limited emphasis on medium sized service firms in developing economies. It is worth recognizing that for strategic measurement system to be effective, it should have a balanced set of measures that cover a wide range of financial and non-financial measures; considers the enterprise and customer perspectives; accommodates continuity and change forces; stimulate reactive and proactive actions; and consider both external and internal factors (Sushil, 2009). Meaning, strategic measurement systems are expected to have adequate breadth that measures all critical facets of the organization (Lima, Costa & Angelis, 2009). The distinctive differences in the structure and philosophy of medium sized service firms as well as unique contextual factors indicated a need for investigation into the use and effects of strategic measurement systems' models on performance of medium sized service firms in developing countries (Hudson, Smart, & Bourne, 2001). Still, there is need to



understand how the breadth of the strategic measurement system influence performance of medium sized service firms in developing countries.

2.0 STUDY OBJECTIVE

The objective of this study was to determine the effects of the breadth of strategic measurement system on performance of medium sized service firms in Kenya.

Ho: The breadth of the strategic measurement system has no significant effect on performance of medium sized service firms in Kenya.

Ha: The breadth of the strategic measurement system has a significant effect on performance of medium sized service firms in Kenya.

3.0 LITERATURE REVIEW

Theoretical Review

The study was guided by resource-based view (RBV) theory. Resource based view theory was developed on the quest to explain the persistent firm performance differences (Barney & Arikan, 2001) and the central premise of the resource-based view theory is that firms compete based on their resources and capabilities (Bridoux, 2004). The theory argues that firm performance is primarily influenced by resources and capabilities at the firm's disposal. Resources being defined as stocks or available factors owned or controlled by the firm, while capabilities define firm's capacity to deploy resources, usually in combination, using organizational processes, to effect a desired end (Landroquez, Castro, & Cepeda-Carrión, 2011). In this way, the theory aspires to explain the internal sources of a firm's sustained competitive advantage (SCA) (Ferreira et al., 2011). The central proposition is that if a firm is to achieve a state of SCA it must acquire and control valuable, rare, inimitable, and non-substitutable resources and capabilities, plus have the organization in place that can absorb and apply them (Kraaijenbrink, Spender & Groen, 2009).

Based on RBV theory, this study argues that having a broad strategic measurement system facilitate development of a pool of vital and unique knowledge(critical competitive resources) about the internal and external state of the organization. The difference in knowledge resource base due to difference in the breadth (scope) of the strategic measurement system therefore, creates a basis for variation in firm performance. Where firms with broader strategic measurement systems would be expected have the potential of



generating more information that is vital for developing competitive advantages. Thus, the breadth of strategic measurement systems influence the firms' performance by enhancing organizational capability through learning processes.

Empirical Review

It has been argued that broader measurement systems covering all key activities within the organization provides a much better view of the organization with the potential of influencing performance of the organization (Garengo, Biazzo & Bititci, 2005). Further, the breadth of strategic measurement system should be multidimensional considering both financial and non-financial measures, leading and lagging measures as well as strategic and functional measures. Despite this, empirical evidence showing use of narrow measurement systems by small and medium enterprises (SMEs) is very much common in strategic management literature. A study by Sousa, Aspinwall and Rodrigues (2006) based on SMEs in England, established that despite SMEs recognizing the importance of performance measurement system in influencing behaviour, their adoption of strategic measurement systems is very low and limited to very few functionally oriented measures.

Using the BSC model, Sousa, Aspinwall and Rodrigues (2006), indicated that financial measures were the most widely used performance measures, followed by internal business process perspective, customer perspective while innovation and learning measures were rated less important and were less used by SMEs. This narrowed the breadth of strategic measurement systems used by the SMEs. On specific type of measures, Sousa, Aspinwall and Rodrigues (2006), revealed that manufacturing quality was the most important performance measure followed by price, product reliability, wider product range, ability to manufacture customer special, on-time delivery, and delivery lead-time. The study suggested that SMEs should use more productivity, employee training and customer requirement measures to enhance the level of use of innovation and learning measures to create balance in the strategic measurement system. Interestingly, the study findings suggested that there are no significant differences in the use of performance measures between manufacturing industry and service enterprises. The major limitation of the study was very low response rate, thus generalization of these findings can only be done with caution.



In an attempt to develop a framework for information systems' performance measurement among SMEs in India, a study by Kumar and Bhagwat (2006) examined how Indian SMEs measure performance in the implementation of information systems in normal routine business operations. The study showed a positive relationship between performance measurement and operational efficiency of the information system function, down time of information system, responsiveness of information system, timeliness of information, accuracy of information and overall competitive position of the firm. The study revealed limited use of strategic measures. The study however suggested that information system performance measurement framework could be the foundation for SMEs' strategic growth in the era of globalization. In Italy, Garengo and Bernardi (2007b) sought to establish the role of performance measurement systems in supporting company development. The study was based on manufacturing SMEs in Veneto region. Even though the study showed limited adoption of broad based performance measures by SMEs, the study also showed that implementation and use of performance measurement systems could offer a key support for the improvement of organizational capability in SMEs by offering tools to support the decision-making process by gathering, elaborating and analysing information. In this way, performance measures act as triggers to radical change in organizational capabilities and favour qualitative growth.

Hinton and Barnes (2009) sought to identify features of an effective performance measurement for SMEs e-business in United Kingdom. The study showed that SMEs primarily use a mix of measure with their performance metrics focusing on financial measures such as sales values and volumes. The other process metrics include measures such as speed, cost and quality. Customer metrics included customer conversion rate, retention and satisfaction. The study was of the view that no single effective e-business performance measurement system does exist. Therefore, organizations based on their context can continue through their evolving practices to discover the steps that may constitute an approach to developing more effective e-business performance measurement systems. Saunila, Pekkola and Ukko (2014) conducted a web-based survey in Finish firms to establish whether performance measurement moderates the relationship between innovation capability and firm performance. The study showed that measurement partly moderates the relationship. Firms that measure the determinants of innovation capability,



especially through active exploitation of external knowledge, are more likely to engage in a higher level of innovation capability, which in turn has a positive impact on their strategic performance. A study by Silvi, Bartolini, Raffoni and Visani (2015) explored the practices of strategic performance measurement systems among the Italian medium sized firms by focusing on models, drivers and information effectiveness. The study found out that 88% of the sampled companies include financial indicators in their reporting but very few include other dimensions especially the external dimensions and forward-looking indicators such as innovation and human resources management. Despite the study focusing on medium sized enterprises, its scope was limited to Italian firms.

Contradicting results on the impact of performance measurement systems on firm performance include a study by Hvidman and Andersen (2013) which while comparing performance management between private and public schools in Denmark found out that the impact of performance measurement systems is contingent on the sector and scope of the system. The study showed that performance measurement systems constituted effective means of improving performance in private schools without having negative effects on equity unlike in the public schools where performance measurement systems did not improve performance. The difference was attributed to variability in the scope of the systems where less developed (narrow) systems fail to cover all aspects of the organization to stimulate strategic outcomes. Further, due to performance measurement system scope limitations, a study by Heinrich (2011) evaluated performance standards of employment and training programs in the US and concluded that the performance measurement systems are weakly related to the true long-run impacts of the programs. Moreover, a study by Gerrish, (2014b) evaluating child support programmes in the USA provided additional evidence that measuring (and rewarding) performance may not improve performance when the scope of the performance measurement system was too narrow and focused on mainly on operational achievements.

Studies carried out in Kenya also extend the argument that the breadth of the system influences the impacts of strategic measurement systems. A study by Fwaya, Odhuno, Kambona and Othuon (2010) exploring performance measurement systems in the hotel industry in Kenya showed that the relationships between performance measurement system's dimensions are complex and vary over time according to the system's scope, type



of hotel, stakeholders and strategies which should be aligned to the capabilities and processes, which in turn determine the results. A study by Kihara (2013) sought to establish whether strategic performance measurement influences the overall performance of operations at Kenya Rural Roads Authority. The study established that the use of strategic measurement systems is not guaranteed and is influenced by its scope, availability of finance, commitment of top management, employee capacity and technology. The study indicated that a sound strategic measurement system, which fits well into the operational system of the organizational activities, is a key factor in the success of strategic measurement system. Similarly, a study by Chimwani et al. (2013) using balanced scorecard model explored the application of strategic measure systems in small and medium-sized manufacturing enterprises in Kenya. The study established limited use of strategic measures among the Kenyan manufacturing SMEs with preference of short-term financial measures. The study was however, delimited only to the manufacturing sector. From the review, it is evident that most studies on the subject have focused on manufacturing firms and large firms in developed economies. The few studies conducted in Kenya are mainly case based and have not singled out the effect of breadth of strategic measurement systems among the medium sized service firms. Due to distinctive uniqueness of the medium sized service firms in philosophy and operations, it is imperative to create a clear understanding of the exact use and effect the breadth of strategic measurement systems on their performance.

3.0 METHODOLOGY

The study was descriptive. The study population comprised of 3,060 registered medium sized (50-100 employees) service establishments in Kenya (KNBS, 2016). The target population was 2,039 medium sized service firms registered by Nairobi City County (NCC), Kenya (NCC, 2018). The study adopted stratified random sampling technique to sample 323 firms to participate in the study. The firms were selected proportionately from the transport and warehousing sub-sector (19.7%), tourism and hospitality (60%), finance and insurance (8.6%), professional services (2.5%), Education (1.9%), Health (1.9%) and arts and entertainment (2.5%). A standardized questionnaire was used to collect primary data from chief executive officers of the firms between April and August 2018. Data collection involved drop and pick strategy. Frequencies, means, standard deviations and percentages were used



to present the descriptive statistics. Regression analysis was used to show strength and direction of the relationship between the study variables.

4.0 RESULTS AND DISCUSSIONS

Descriptive Statistics

The study achieved 46% response rate. There were two levels of evaluation, use of optional choice questions and a Likert scale. The respondents were asked to indicate the common performance indicators in their organizations. The key performance indicators are shown in Table 1.

Table 1: Common Key Performance Indicators

Category	Common Measures (n=150)
i. Financial Measures	Net profits (100%); Return on Investment (98%); Operating income (95%); Operating cost (94%); Sales figures (91%); Sales volumes (85%); Sales growth (73%)
ii. Customer perspective measures	Customer complaints (61%);
iii. Learning and Innovation measures (Actors + Situation)	Service quality (55%)
iv. Internal business processes	Quality of supplies (87%); Staff competency (73%); On- time delivery (51%); Response time (41%)

Table 1 reveals that financial measures were the most frequently used indicators. The most common indicators included net profits (100%), return on investment (98%), operating cost (94%) and sales figures (91%). Fewer firms were measuring service quality (55%) and individual employee's response time (41%). These findings imply that while all firms measured some kind of financial performance, at least 45% of the firms did not include measures on learning and growth (Actors and Situation), at least 31% did not include customer perspective measures and at least 13% did not measure internal process effectiveness. This shows that a large number of firms were focusing more on short-term objectives with little attention to strategic goals. Meaning at least 45% of the firms use unbalanced measurement systems where learning and innovations are not given adequate attention. Table 1 also shows there are more internal measures than external measures. This indicates that managers are more concerned with internal business processes and their immediate financial outputs at the expense of long-term outcomes. The findings are that service providers in Kenya focus on supported by Ahmad (2014) conclusion that small and medium enterprises use a blend of both financial and non-financial measures. However, as indicated by Maduekwe and Kamala (2016), financial



performance measures are more frequently used by SMEs compared to non-financial performance measures. This is further supported by conclusion by Wadongo et al. (2010) financial and result measures of performance while ignoring non-financial and determinant measures. Flexible strategy-game-card model was used to construct the Likert Scale to assess the effect of breadth of strategic measurement system on performance. According to the model, to be strategic a performance measurement system should adequately measure processes, customer perspectives, actors' perspectives, and situational perspective (Sushil, 2010). The findings are illustrated in Table 2.

Table 2: Breadth of Strategic Measurement System

	Strongly disagree (1)	Disagree (2)	Somehow agree (3)	Agree (4)	Strongly agree (5)	Mean	Std. Dev.
Breadth of PMS							
Processes (n=150)							
Employee competency levels (I)	3.4%	0.6%	5.6%	40.2%	50.3%	4.1	0.78
Work place quality (I)	1.7%	1.7%	4.5%	35.8%	56.4%	4.3	0.81
Quality of supplies(E)	2.2%	1.7%	7.3%	60.9%	27.9%	4.3	0.88
Quality of distribution (E)	1.7%	1.7%	4.5%	35.8%	56.4%	4.4	0.80
Aggregate score for process	2.3%	1.4%	5.8%	44.0%	34.1%	4.3	0.82
Customer (n=150)							
Price competitiveness (E)	1.1%	2.8%	10.6%	46.9%	38.5%	4.2	0.81
Customer loyalty (E)	0.6%	2.6%	10.1%	41.9%	44.7%	4.3	0.80
Aggregate score for customers	0.9%	2.7%	10.4%	44.4%	41.6%	4.3	0.81
Actors (n=150)							
Employee turnover ratio (I)	1.1%	8.4%	14.0%	55.8%	20.7%	3.7	0.88
Employee needs assessment (I)	0.6%	3.9%	48.6%	40.2%	6.7%	3.2	0.71
Customer-repurchase (E)	3.9%	3.4%	20.1%	54.2%	18.4%	3.4	0.92
Aggregate score for actors	1.9%	5.2%	27.6%	50.1%	15.3%	3.4	0.84
Situation (n=150)							
Legal conformance (E)	0.6%	2.2%	20.1%	51.8%	25.1%	3.4	0.77
Company Profitability (I)	0.6%	0.0%	1.1%	29.6%	68.7%	4.1	0.56
Equipment effectiveness (I)	0.6%	3.4%	16.2%	50.8%	29.1%	3.9	0.80
Aggregate Score for situation	0.6%	1.9%	12.5%	44.1%	41.0%	3.8	0.71
Aggregate for Breadth PMS	1.4%	2.8%	14.1%	45.7%	33%	4.0	0.80

Note: I-Internal perspective , E-External perspective

Findings in Table 2 reveals that the respondents strongly agreed that processes ($M=4.3$, $SD=0.81$) and customers financial performance ($M=4.3$, $SD=0.81$) perspectives are measured



in their organizations. Table 2 further indicates that the respondents somehow agreed that actors perspectives are measured ($M=3.4$, $SD=0.84$) but agreed that firm situation is measured ($M=3.8$, $SD=0.71$). The findings reveal that comparatively, most of the firms lay more emphasis on measuring processes and customer financial performance. However, limited emphasis is given to situation and actors perspectives. Particularly, limited focus is put on actors perspective such as employees needs assessment ($M=3.2$, $SD=0.71$) and customer re-purchase frequency ($M=3.4$, $SD=0.92$). Similarly, not as much effort is given to conformance to legal requirements ($M=3.4$, $SD=0.77$). The fact that employee needs assessment is least considered is an indication of probable misalignment of the performance measures to stakeholder's expectations. Particularly lack of focus on employee needs would stifle employee concerns such as motivation, career growth, and innovations, which have a direct link with delivering value in the future. This therefore, reduces the strategic measurement system's effectiveness in delivering strategic results.

In summary, the findings reveal that medium sized establishments in Kenya adopt the use of strategic measurement systems since the systems in use capture processes, customer financial performance, actors' perspectives, and situational perspectives as recommended by Sushil (2010). The measures also capture both external and internal perspectives of the firm. However, the adequacy and effectiveness of the strategic measurement systems are of concern, as the measures are unbalanced and mainly focus on operational activities (processes) and profitability with limited emphasis on firm actors and situation perspectives. This means that strategic measurement systems are primarily looking at the past performance through an integration of profitability indicators and internal efficiency measures. The fact that forward looking measures such as actors' measures are included only to a limited extent means that strategic measurement systems adopted by most medium sized service firms in Kenya are not as comprehensive as expected to elicit the desired strategic outcomes. For instance, measures of employee needs assessment, which in this case is given little attention would inform decisions for developing unique long term capabilities within the organization and retaining the same as a source of long term strategic competitive advantages.



These findings are consistent with a study by Silvi, Bartolini, Raffoni and Visani (2015) on practice of strategic measurement systems among the Italian medium sized firms. The study established that 88% of companies included financial indicators in their reporting but very few included other dimensions of performance especially the external dimensions such as customers (22%), supply chain (22%), competitors (15%), and forward-looking indicators such as innovation and human resource management (2%). Similarly, a study by Garengo and Bernardi (2007b) in Italy, attributed lack of sustainable competitive advantage among medium sized firms to focus on measuring operational and technological factors at the expense of strategic measures. Likewise, Chimwani et al.(2013) attributed inadequate strategic capabilities among small and medium sized enterprises in Kenya to limited use of strategic measures with preference of short-term financial measures with measures for internal business process, innovation, and learning being less obvious. This limits the firms' ability to generate the necessary strategic information for successful deployment of competitive strategies for the firms' sustainable survival and growth. These findings therefore illustrates that the breadth of performance measurement systems used by medium sized service firms in Kenya is mostly limited to profitability indicators and internal efficiency measures. Little emphasis is put on measuring firm actors and situation, which are key in the development of SCA. In overall, even though the measurement systems used by the medium sized enterprises in Kenya are strategic in nature by the fact that they measure both operational and strategic intentions, these strategic measurement systems have inadequacies as they fail to provide a balanced framework for all critical dimensions of firm performance. Thus, as indicated by Hudson, Smart and Bourne, (2001) may not give a truly balanced view of performance.

Firm performance (sustainable competitive advantages) had two sets of measurements. Firm's competitiveness (Sales growth and customer loyalty) and firm financial performance (profitability). Table 3 illustrates the strategic results exhibited by medium sized service firms in Kenya.



Table 3: Strategic Results

Sustainable Competitive Advantages							
Scale (n=150)	<16%	16-30%	31-45%	46-60%	>60%	Mea	Std.
	(1)	(2)	(3)	(4)	(5)	n	Dev.
<i>a) Sales growth in the preceding year</i>	0.0%	76.0%	11.7%	10.6%	1.7%	2.4	0.74
Scale(n=150)	Strongly disagree (1)	Disagree (2)	Somehow agree (3)	Agree (4)	Strongly agree (5)	Mea	Std. Dev.
Customer Loyalty							
Most of our new clients come through referrals	0.0%	0.6%	4.5%	24.0%	70.9%	4.6	0.58
Repeat customers form our main client base	0.0%	0.6%	1.7%	30.3%	66.5%	4.6	0.66
Customers are willing to pay more for services	0.6%	9.5%	19.0%	36.9%	34.1%	3.9	0.98
Aggregate Score-loyalty	0.0%	3.6%	8.4%	30.4%	57.2%	4.4	0.74
Firm Profitability							
Scale (n=150)	<10%	10-15%	16-25%	26-35%	36-50%	Mea	Std.
	(1)	(2)	(3)	(4)	(4)	n	Dev.
Net Profit in preceding year	7.5%	71.3%	10.0%	0.7%	0.0%	12.2	2.76

Table 3 shows that majority of the firms (76%) recorded an average of 16 to 30% sales growth in the preceding financial period (12 months). Majority (87.6%) also strongly agreed that most of their customers are loyal customers who refer new customers ($M=4.6$,



$SD=0.58$), always come back ($M=4.6$, $SD=0.66$) and are willing to pay more for the services they are offered ($M=3.9$, $SD=0.98$). Finally, Table 3 reveals that majority (81.3%) of the firm's earned a net profit between 10-25% in the preceding financial period. The low average sales growth rate and low profitability shows an industry whose strategic performance is not robust. This can be attributed to focus on short-term financial objectives and operational efficiencies rather than a balanced blend of financial and strategic outcomes. The study indicated limited focus in measuring employee development and innovation. This can be directly linked to the observed poor performance of innovative ventures and low sales growth.

Inferential Statistics

To test the study hypotheses, linear regression analysis was conducted. An index for each construct was constructed by averaging the mean scores for the test items in each construct. Hypothesis testing used 95% confidence level for drawing conclusions. Diagnostic analysis was first conducted to establish the suitability of the data for conducting linear regression analysis. Table 4 shows an overall Cronbach's alpha of 0.77, which met the minimum requirement for a good composite reliability as recommended by Field (2013). Table 4 also shows an insignificant Shapiro-Wilk test values ($SW(150) = 0.982$, $p=0.67$). This indicated that the data (regression residual/error terms) did not significantly deviate from the normal distribution. Firm size was used to compare group means (test for linearity) and the results in Table 4 shows that the probability of the F -statistic was less than the set alpha level of 0.05 ($F(1, 21)=171.2$, $p<0.00$) indicating linearity of the relationship between the breadth of the strategic measurement systems and firm performance. Table 4 further indicates that the Levene's test (test for Homoscedasticity) was insignificant ($F(4, 145) = 1.093$, $p=0.362$). Thus, the assumption of homoscedasticity was upheld. In addition, Table 4 indicates that the Durbin-Watson (DW) value (1.859) was within the recommended range of $1.5 < DW < 2.5$.



Table 4: Hypotheses Testing

Goodness of Fit	df	Test	SE	Sig.
		Statistics		
R-Squared		.456	.34319	
Adjusted R ²		.453	.34319	
F-Statistic	(1,148)	124.297		.000
Shapiro-Wilk test (Normality)	(150)	0.982		.067
Test for linearity (F)	(1,21)	171.2		.000
Levene's Test (Homoscedasticity)	(4,145)	1.093		.362
Durbin-Watson (Autocorrelation)		1.859		
Cronbach's Alpha (n-12)		0.77		

Multiple Linear Regression Results					
Dependent Variable= Firm Performance	Unstandardized		Standardized	t-statistics	Sig.
	Coefficient		Coefficient		
	B	SE	Beta		
Constant	-1.375	.398		-3.457	.001
Breadth	1.063	.095	.676	11.149	.000

The regression results indicated in Table 4 show that the breadth of the strategic measurement system explained 43.3% variance in firm performance (adjusted $R^2 = 0.443$, $F(1, 148) = 124.297$, $p < .001$). It was found that the breadth of the strategic measurement system significantly predicted firm performance ($\beta_1 = 1.063$, $p < .001$). The linear regression model is presented below.

$$Y = -1.375 + 1.063 X + \epsilon$$

Where: Y is the firm performance

X is the breadth of the strategic measurement system

ϵ is the error term

The study objective sought to determine the effect of the breadth of strategic measurement systems on performance of medium sized service firms in Kenya. The corresponding research null hypothesis proposed that breadth of strategic measurement system has no effect on performance of medium sized service firms in Kenya. The linear regression model estimated revealed that the effect of breadth of strategic measurement systems on performance is statistically significant at $\beta = 0.712$; $t(145) = 7.162$; $p < .001$. Hence, at 95% level of confidence, breadth of strategic measurement systems has a positive effect on performance. These results illustrates that keeping all other factors constant, a unit increase



in breadth of strategic measurement systems corresponds on average to 0.712 unit increase in firm performance.

The study concludes that there is a positive significant effect of breadth of strategic measurement system on performance of medium sized service firms in Kenya. The conclusion of the study supports findings by Kumar and Bhagwat (2006); Fwaya et al. (2010); Kihara (2013); and Chimwani et al. (2013) that the impact of strategic measurement systems is influenced by its scope. The reason being as indicated by Garengo, Biazzo and Bititci(2005) that a broader measurement systems which include all key activities within the organization provides a much better view of the organization with the potential of positively influencing performance of the organization.

The conclusion agrees with RBV theoretical propositions that for a firm to achieve a state of SCA, it must acquire and control valuable, rare, inimitable, and non-substitutable resources and capabilities(Ferreira et al., 2011). Having a broad strategic measurement system therefore facilitate development of a pool of vital and unique knowledgeabout the internal and external state of the organization. Knowledge and its application are here considered as critical competitive resources. The difference in knowledge resource base due to difference in the scope of strategic measurement system therefore, creates a basis for variation in firm performance. Where firms with broader strategic measurement system have the potential of generating more vital information and knowledge, which can be used for developing competitive advantages.

As observed from the empirical literature, studies by Sousa, Aspinwall and Rodrigues (2006), and Hinton and Barnes (2009) were based on UK SMEs; Kumar and Bhagwat (2006) on Indian SMEs; Saunila, Pekkola and Ukko (2014) on Finish SMEs; Silvi, Bartolini, Raffoni and Visani (2015) on Italian SMEs; Kihara (2013) on Kenya Rural Roads Board; and Chimwani et al. (2013) on manufacturing firms in Kenya. These studies did not consider the effect of breadth of strategic measurement system on performance of medium sized service firms in Kenya. Thisstudy adds to the existing body of empirical literature by confirming that breadthof strategic measurement system significantly influences firm performance. The findings therefore add empirical information for validation of the concept.



5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the study objective, the study concludes that the breadth of strategic measurement system is a statistically significant predictor of performance of medium sized service firms in Kenya, indicating a positive effect of breadth of strategic measurement system on performance of medium sized service firms in Kenya. The study also concludes that strategic measurement systems used by a large number of medium sized service firms in Kenya do not have adequate breadth and are not comprehensive enough to elicit strategic outcomes. The firms focus more on measuring short-term objectives (like profitability and internal efficiency) with little attention on strategic goals (such as customer relations, learning and growth). This means that strategic measurement systems are primarily looking at the past performance through an integration of profitability indicators and internal efficiency measures.

The study therefore recommends expansion of breadth of these systems to include adequate measures for strategic goals. Particularly, managers of these firms should strive to promote measuring and reporting of non-financial measures such as customer relations, learning and growth indicators, and relate them to firm performance. The study being among the few conducted in Kenya on the concept of strategic measurement systems design, more replicative research in the sector and other sectors of the economy in Kenya would provide more data for validation of the findings and conclusions.

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