Influence of Strategic Physical Resources on Performance of Small and Medium Manufacturing Enterprises in Kenya

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ABSTRACT

Purpose

This study sought to determine the influence of strategic physical resources on performance of small and medium manufacturing enterprises in Kenya. Anchored on the Resource Based View (RBV) theory the study adopted positivism research philosophy descriptive and causal-effect research designs.

Design/methodology/approach

The population for the study comprised of the management staff of the 350 small and medium manufacturing enterprises registered by the Kenya Association of Manufacturers (KAM) where a sample of 183 participants was chosen using stratified sampling method. The study tested for content validity as well as reliability using internal consistency of the questionnaire using Cronbach alpha coefficient. Data analysis was conducted using descriptive statistics and regression analysis to conclude that physical resources have a significant influence on performance of small and medium manufacturing enterprises in Kenya.

Findings

Consequently the study recommended that the management of SMEs should ensure that they invest significantly in these resources so as to maximise on the performance of these firms. However the conclusions reached in this paper were based on data collected from small and medium manufacturing enterprises in Kenya. For this reason, the results of the study suffer from generalizability since they may not be inferred on other firms other than manufacturing firms in the sector with similar characteristics.

Originality/value

The findings of this study significantly contribute to the existing pool of knowledge regarding the concept of intellectual capital and its implications on organizational performance. Scholars and other researchers would find the outcomes of this study relevant as reference material to advance in their research.

1. Introduction

Organisations rely on the resources at their disposal to produce goods and services in their quest to generate more revenue and maximise their performance. As opined by Ombaka, Machuki and Mahasi (2015), firm's resources are essential in determining a firm's success. It follows that for organisations to perform better they need more and more resources. However, as noted by Hatch and Howland (2015) resources are not an adequate condition to generate superior performance. Instead, for the resources to generate superior performance they must be strategic in the sense that they must be rare, valuable, non-substitutable and inimitable. Rareness in this sense means that the resources are scarce and only accessed by a few making

them unique to the firm. This is why a resource needs to be rare if it is to give the organisation a competitive advantage. Further, Kim and Mauborgne (2014) note that resources are not valuable in themselves but they give organisations the capabilities to operate in a way that they can have sustainable and competitive business. If the organisation wants to have a competitive edge over its rivals, it has to have resources that are more than immobile and heterogeneous.

Additionally, if a resource is to be a source of a sustainable competitive advantage, the heterogeneity in it must not be a onetime thing but should continue in the long term since the resources used to create a competitive advantage are not mobile for different organisations. Barney (1991) points out that an organisation's strategic resources consist of the human,

physical, intellectual capital and financial resources. The organisation uses these resources to produce goods and services that are unique and that cater for the customer's needs. Physical resources include the resources that are visible such as the firm buildings, manufacturing facilities and physical assets. According to Gakenia (2014), the performance of an organisation is dependent on the effective and efficient use of the resources under the organisations disposal. It is therefore necessary for managers of SMEs in the manufacturing sector to pinpoint the resources at their disposal and use them strategically to build a competitive and sustainable business. Further, Zarutskie (2010) noted that physical resources in the likes of furniture, equipment, materials, and machines offer a vital service to production process. Further, Barney (2014) was of the view that human and physical resources are some of the most essential organisation's resources.

Porter (1986) is said to be the person behind the concept of competitive advantage (CA). According to Porter (1985) CA comes as a result of the long-time use of unique strategies that result to value. These strategies are not only unique but rare. Based on Porter's view, organisations that want to compete successfully in a dynamic business environment should come up with generic strategies and use them to achieve sustainable and profitable business (Yadav, Han & Kim, 2017). Generic strategies do not only make an organisation's operations competitive but sustainable in the long run. This advantage is achieved due to the use of the available company resources (Hatch and Howland, 2015). If these resources are used optimally they can give the firm a competitive advantage based on price or one based on differentiation leading to sustainable and efficient business. The efficiency that comes from such operations leads to minimal operational costs or allows the product to be unique in terms of better quality, higher awareness of the brand or enhanced availability (Wagner & Hollenbeck, 2014). Small businesses are often found in a saturated market where competition is intense and can be the biggest gainers of competitive advantage.

According to Koontz and Thomas (2012), an organisation is only successful if it is able to give its shareholders profits and if it can maintain this profitability in the long term. Performance in manufacturing SME's is paramount as it is what determines the firm's prosperity, survival and expansion. As noted by Musah (2008) there are different means of measuring performance. The type of measure to be used is dependent on the industry, the products the firm offers and the structure of the firm. For instance, Saleem and Khurshid (2014) states that performance is the total results of a firm activities and the output the firm gives to the shareholders. This outcome is measured in terms of loyalty, commitment, efficiency, effectiveness, effort, participation, decision-making, innovativeness and profitability. Further, Nzitunga (2015) noted that SME's are an important part of any economy since they help in the achievement of economic goals through job creation for the country's population.

In Kenya, Small and Medium Enterprises make a significant contribution to the Kenyan economy, accounting for 20 percent of Kenya's GDP and contribute to 88 percent of jobs created annually (RoK, 2015). Further, women owned businesses account for over 48 percent of all SMEs in Kenya. The sector is a source of customer products, it is a source of innovation, competition and good organisation culture which are important in enhancing the development of the private sector and improved industrialization (Bowen, Morara & Mureithi, 2009). However, these SMEs are constantly faced by threat of failure and most of them close down shortly after their establishment and never grow into large businesses. This may be partly attributed to lack of management skills on the part of the proprietors coupled with shortage of resources that are strategic in nature. This study aimed at establishing the influence of strategic physical resources on performance of Kenyan manufacturing SMEs.

2. Literature Review

The study is based on the Resource Based View (RBV) theory attributed to the works of Penrose (1959) who showed that organisational performance is directly related to the resources owned and controlled by the firm. The theory postulates that firm performance is dependent on how a firm controls its resources (Wernerfelt, 1984). Consequently, the emphasis of the theory is on acquisition of strategic resources from which a firm can gained competitive advantage and the combination of such heterogeneous resources in a manner that guarantees greater performance and sustainability (Kraaijenbrink, Spender & Groen, 2010). Additionally, this theory is fit for this study as it allows organisation leaders to determine if they have resources that can give the firm a competitive and sustainable edge. They are also able to use market imperfections to their advantage. This means that firm leaders can use t a combination of resources available to them to compete effectively against their rivals. The R BV theory highlights ways that organisations can achieve superior performance by use of resources at their disposal. However, the emphasis here is that an organisation can only build a competitive and sustainable enterprise if it uses resources that are non-substitutable, inimitable, rare and valuable.

The study found that there exists a lot of literature on physical resources and firm performance. For instance Grant (1991) and Barney (2014) concluded that in order to gain a sustainable competitive edge, firms must be in a position to gain access and control resources such as physical resources and deploy then in a coherent manner. It was also noted that over the years, firms have mainly focused on how to employ or use their existing physical resources which in turn results in providing partial explanation on the emergence of heterogeneous resource positions. Barney (1991) argued that lasting competitive position requires synergic coordination and configuration of resources and capabilities to positively influence firm performance.

Moreover, Benjamin and Orodho (2014), physical facilities represent one of the most important components of organizational resources that stimulate production and superior performance. Studies have shown that manufacturing organisations success depend

on the available resources at the firms disposal and the way in which these resources are used. Although it is important for managers to study and determine the resources available, Myeda and Pitt (2014) emphasized on the responsibility of FM in encouraging organizational performance, and in provision of competitive advantage. At the same time, examining the relationship between facility management, customer satisfaction and service relationship in the health care facilities located in Bangkok, Pitt, Chotipanich, Issarasak, Mulholland, and Panupattanapong (2016) indicated that a favourable association does exist between the study variables.

Moreover, Angila (2008) looked at the impact availability and use of physical resources has on the performance of students at Kimathi Primary School. The results showed a favourable relationship between the study variables. Further, assessing the impact of management of physical resources on KCSE performance in Kisii central based public secondary schools, Mong'are (2012) found that the lack of funding led to inadequate learning and teaching resources, congestion and un-conducive learning environment. At the same time, Obinga (2014) looked at the association between physical resources and internal efficiency of public secondary schools in Tana river County, Kenya. The findings showed that the availability of physical resources in these schools had a favourable impact on their internal efficiency. Finally, Ndungu (2014) did a study to determine the availability, use and effective utilisation of leaning materials, equipment, teaching materials and physical educational resources in Starehe Nairobi primary schools. The outcome showed that many of these schools did not make the provision of adequate physical resources, development and use of these resources part of their budget.

3 Methodology

The research philosophy adopted in this study was positivism philosophy whose ontology states that reality is real and encourages the collection of data to provide the results of a research. The positivism philosophy also encourages the use of real facts, measuring the data, being objective, neutral and validation of the data (Saunders, 2011). Additionally, the epistemology of this philosophy makes an assumption that the research will not be biased since the researcher will not be part of the researched participants and will do the study with no bias. In this study the researcher observed objectivity as outlined in this philosophy. Moreover statistical tests of hypothesis were conducted to make conclusions in this study. Based on these observations the philosophy applicable in the study. The research designs adopted in the study were descriptive research design as well as causal-effect research design. The target population in this case consisted of the management staff of the 350 small and medium manufacturing enterprises registered by the Kenya Association of Manufacturers (KAM). A sample size of 183 respondents (one respondent per firm) was chosen with the help of stratified sampling method. The research tool used to collect primary data was a semi-structured, self-administered questionnaire. The instrument was tested for validity through content validity. As explained by Sekaran (2011) testing for content validity of a research tool is important since it determines the extent to which the tool content is in line with the content related to the phenomenon under study. Reliability was tested using internal consistency via Cronbach alpha coefficient. A coefficient of 0.7 and above as advised by Field (2009) was considered adequate. The questionnaire contained two sections, the first section covered the demographic characteristics of the respondents while the second section consisted of the research questions on the dependent variable (firm performance) and independent variable (physical resources). In this study, the dependent variable (performance) was measured in terms of profitability, sales volume, market share and number of customers as advised by Kaplan and Norton (2007) in their concept of balanced score card which allows companies to track financial results while monitoring progress in building capabilities needed for growth. On the other hand, physical resources were operationalized in terms of production facility, ICT infrastructure, natural resources and marketing infrastructure as recommended by Zarutskie (2010) who observed that physical resources also include machines, equipment, furniture and materials, which offer a vital service to production process. The respondent were required to respond to the research items on the extent to which they agree with the statements on the aspects of study variables in a 5-point Likert scale where 5- was very large extent and 1 represented no extent.

Descriptive statistics including standard deviation and mean helped analyse the data. Inferential analysis with the use of regression analysis was also done. The independent variable (physical resources) was measured through production facility, ICT infrastructure, natural resources and marketing infrastructure while performance was measured through profitability, sales volume, market share and number of customers. To test the significance of the regression model the study conducted an F-test while the significance of the study coefficients was tested using the P-value at 0.05 significance level. The study findings were presented inform of tables.

4. Results and Discussions

This study used descriptive statistics to establish the relationship that exists between physical resources and performance. The descriptive statistics provides a summary on the characteristics of the study variables through measures of central tendency: specifically, the mean and the standard deviation. In this section, the respondents were required to express the extent to which they agreed to statements on each of the study variable in a 5-point Likert scale where 1 represented no extent while 5 represented very large extent. Each variable is discussed separately and presented in separate tables. The descriptive results for physical resources are as shown in Table 1 below

The results shown in table 1 indicated that the aggregate mean score for physical resources was found to be 3.52 which showed that majority of small and

medium manufacturing enterprises in Kenya utilized physical resources to a great extent in influencing their firm performance. However, the study noted that there was high disparity in the utilization of the physical resources as shown by a standard deviation of 1.08. Results further showed that majority of small and medium manufacturing enterprises in Kenya were connected to the internet as shown by a mean score of 3.85. This meant that the respondents to a great extent agreed that their university was connected to the internet.

Table 1: Descriptive Statistics for Physical Resources

	N	Mean	Std. Deviation	Coefficient of Variation	t-statistic	Sig. (2-tailed)
ICT infrastructure						
This organization is connected to the internet	131	3.85	1.106	0.287	39.824	.000
Use of ICT in our organization has improved our efficiency	131	3.75	1.166	0.311	36.797	.000
All departments in this organization are connected through an internal network	131	3.64	1.222	0.336	34.104	.000
Processes in this organization have been automated	131	3.44	1.124	0.327	34.984	.000
This firm has adequately invested in information communication technology.	131	3.41	1.129	0.331	34.588	.000
This firm encourage sharing of databases with our customers to monitor their stock levels	131	3.31	1.164	0.352	32.573	.000
Production facility						
The layout of our factory is designed to improve efficiency.	131	3.76	1.006	0.268	42.801	.000
The production facility available is adequate to meet our customers' demands.	131	3.60	.943	0.262	43.647	.000
The organization has invested in adequate production facility.	131	3.57	.953	0.267	41.523	.000
There is adequate space in the production section.	131	3.56	1.054	0.296	38.642	.000
Marketing infrastructure						
Our marketing team is adequately empowered to carry on their functions	131	3.57	.985	0.276	42.907	.000
This company has a strong marketing infrastructure	131	3.45	1.104	0.320	35.773	.000
The company has adequate distribution channel for our products	131	3.59	.927	0.258	44.292	.000
Natural resources						
There is free flow of raw materials and finished goods on the production floor.	131	3.48	1.105	0.318	36.059	.000
We have adequate access to natural resources	131	3.23	1.092	0.338	33.832	.000
Most of our raw materials are natural resources	131	3.11	1.125	0.362	31.611	.000
Aggregate Score	**131**	**3.52**	**1.08**			

Source: Survey Data (2018)

These results signified the relevance of connectivity to the internet on firm performance. Pitt, et al. (2016) showed that connectivity to the internet may boost firm performance by improving access to market information, by facilitating more effective coordination of firms' production and delivery chains and by creating new business opportunities. Accordingly, small and medium manufacturing enterprises in Kenya tap into the internet so as to increase performance levels.

The statement with the highest absolute deviation as measured through the standard deviation was that all departments in this organization were connected

through an internal network with a standard deviation of 1.222. These results showed that some organisations had all their departments connected through an internal network while in other originations though connected to the internet did not have an intranet connecting all the departments in the organisation. It was shown by

Paunov and Rollo (2016) that internet and intranet adoption positively affects a firms' labour productivity and also improves firms' efficiency in Africa, Eastern Europe, Central Asia, the Middle East as well as Latin America and the Caribbean.

Table 2: Descriptive Statistics for Performance

	N	Mean	Std. Deviation	Coefficient of Variation	t-statistic	Sig. (2-tailed)
Profitability						
Gross profit margin has been on the rise	131	3.79	.950	0.251	45.687	.000
We have observed a steady increase in profit before tax	131	3.66	1.058	0.289	39.553	.000
This company has over the years experienced gradual growth in profit after tax	131	3.63	1.083	0.298	38.409	.000
Sales volume						
Our firm has been experiencing growing sales volume	131	3.85	1.016	0.264	43.419	.000
Our customers have been gradually increasing their order volumes	130	3.62	1.109	0.306	37.157	.000
Market Share						
Our main products occupy the bigger portion of market share	131	3.63	1.018	0.280	40.775	.000
We pride as the manufacturing firm with the highest market share	131	3.52	1.126	0.320	35.784	.000
Number of Customers						
The quality of our products has helped us increase the number of customers	131	3.95	1.152	0.292	39.199	.000
The number of customers in this firm has been gradually increasing	131	3.89	1.010	0.260	44.136	.000
Aggregate Score	**131**	**3.727**	**1.058**			

Source: Survey Data (2018)

The overall mean score for the firm performance was 3.727 indicating that majority of respondents agreed that the performance of their firms had increased to a great extent. Additionally, the overall standard deviation was 1.058 which shows that there was a high dispersion in performance among the small and medium manufacturing enterprises in Kenya. Based on the magnitude, it was found that majority of small and medium manufacturing enterprises in Kenya relied on the quality of their products to increase the number of customers as shown by a mean score of 3.95 and a standard deviation of 1.152. The high value of the standard deviation depict that there was high variability on the pursuit of quality products among the small and medium manufacturing enterprises.

The respondents also believed to a great extent that their manufacturing firm had the highest market share with a mean score of 3.52 and a standard deviation of 1.126. Although, this is the statement that received the least mean score, the results showed that majority of the respondents believed that their firm held a significant proportion of the market in the regions that they operate. Hatch and Howland (2015) had earlier concluded that for firms to effectively compete in the

complex and highly competitive environment, companies must constantly improve the quality of their products, reducing costs, and differentiating their products and services. The results therefore show that small and medium manufacturing enterprises in Kenya had adopted this strategy to a great extent though with a significant level of variability as shown by the standard deviation.

5.1 Reliability Of The Research Instruments

Reliability of the research instrument in this study was tested using internal consistency test. The internal consistency was measured using Cronbach's alpha coefficient (α). The coefficient indicates how well the items in a set are positively correlated to one another (Benjamin & Orodho, 2014). The Alpha ranges from zero, indicating no internal consistency, to one, showing complete internal consistency. The higher the coefficient, the more reliable the measurement scale. As rule of the thumb, reliability value of 0.6 and above is acceptable. Reliability of research instruments was conducted and the results are as shown in Table 3 below

Table 3: Variable Reliability Statistics

Variable	Cronbach's Alpha		
	Pilot	Main Study	Remarks
Physical resources	.872	.883	Reliable
Performance	.904	.904	Reliable

Source: Survey Data (2018)

From the result shown in Table 3, it is found Cronbach alpha coefficient for physical resources was 0.883 while performance had a coefficient of 0.904. Based on these observations, the study noted that the coefficients for all the constructs were greater than 0.7 and it was therefore concluded that the questionnaire was reliable.

The study further conducted inferential analysis through regression analysis was conducted and the results are as shown in Table 4

Table 4: Regressing performance and physical resources

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.668[a]	.446	.442	.592

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36.44	1	36.44	103.884	0.002[b]
	Residual	45.25	129	0.351		
	Total	81.69	130			

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	2.602	.375		6.934	.000
	Physical Resources	.325	.105	.263	3.094	.002

a. Dependent Variable: Performance
b. Predictors: (Constant), Physical Resources
Source: Survey Data (2019)

The results in Table 4 above show that the R square (R^2) for the model was 0.446 meaning that physical resources accounted for 44.6 percent of the changes in performance of manufacturing SMEs in Kenya. The results also imply that 55.4 percent of the changes in performance of manufacturing SMEs in Kenya is explained by other factors other than physical resources. The Analysis of Variance (ANOVA) results indicated that the F-statistic for the model was 103.884 which was greater than the F-critical value of 3.9146 and therefore the model was found to be fit for predicting performance of manufacturing SMEs in Kenya. The results also show that the P-value for the F-statistic was 0.002 which was lowered compared to the significance level of 0.05. Therefore, it was concluded that the model was a good fit for performance prediction.

The results also indicate that the unstandardized coefficient for the constant was 2.602 while that of physical resources was 0.325. The results imply that holding physical resources constant at zero (0) performance of manufacturing SMEs in Kenya would be 2.602. It is also found that with all things constant, increasing physical resources by a unit would lead to a 0.325 increase in performance of manufacturing SMEs in Kenya. The study noted that the P-Value for the regression coefficient (Physical Resources) was 0.002 which was less than the significance level of 0.05. The null hypothesis was not accepted and the conclusion was that resources have a significant influence on performance of manufacturing SMEs in Kenya.

The regression results were thus summarised as follows;

$$FP = 2.602 + 0.325\,PHR + e$$

The results tallied with regression coefficient which showed that increasing physical resources by one unit increases performance of small and medium manufacturing enterprises in Kenya by 32.5 percent showing the great significance of the variable in performance. While the study sought the influence of production facility, ICT infrastructure, natural resources and marketing infrastructure on performance of manufacturing SMEs in Kenya, the descriptive results showed that manufacturing SMEs relied more on the ICT infrastructure by connecting all the departments with intranet and internet to improve efficiency. The study also found that most small and medium manufacturing enterprises relied on production facility and marketing infrastructure to a great extent to improve performance. However, natural resources only had moderate influence of performance.

Theoretically, the variable was based on the RBV theory which stresses the essence of resources to achieve better performance (Wernerfelt, 1984). While physical resources might not be non-substitutable, inimitable, rare or valuable for it to be strategic, the study found that the existence of these resources in form of production facility, ICT infrastructure and marketing infrastructure increases performance of these firms by improving efficiency and increasing market share for the firms. The study therefore found support for the postulates of the RBV theory. Empirically, the study findings showed support to conclusions reached by Benjamin and Orodho (2014) who claimed that physical facilities represent one of the most important components of organizational resources that stimulate production and superior performance. Further, Barney (2014) concluded that physical resources alongside other

resources are some of the most essential when it comes to product firms since they play an important role in the production process. Moreover, Myeda and Pitt (2014) emphasized on the role of facilities management in encouraging organizational performance, and in giving competitive advantage. Angila (2008) investigating the impact availability and use of physical resources on the performance of students concluded that there exists a favourable relationship between the two.

Earlier studies by Angila (2008), Obinga (2014) and Pitt, et al, (2016) had shown that gaps exist in literature where scholars had not conceptualised the measurement of the variable while other studies failed to show the association that exist between physical resources and performance. It was also found that researchers had shied away from measuring performance in manufacturing SMEs in Kenya. This study thus filled this gap by showing that a positive relationship exist between physical resources and performance of small and medium manufacturing enterprises in Kenya. The

study further contributes to the body of Knowledge by showing that physical resources significantly influence performance of manufacturing SMEs in Kenya.

5.2 Correlation Analysis

The objective of correlation analysis was to establish the nature and strength of the relationship that exist between the study variables. To achieve this objective, Pearson's product moment correlation was used. The decision on the strength of the relationship was based on Dancey and Reidy (2004) recommendations who indicated that a correlation coefficient of 1 indicates that there is a perfect correlation between the variables, a correlation coefficient of 0.7 to 0.9 shows a strong correlation, a coefficient of, 0.4 to 0.6 indicates a moderate correlation, a coefficient of 0.1 to 0.3 shows a weak correlation while a coefficient of 0 shows absence of correlation. The results of the correlation analysis were as summarised in Table 5

Table 5: Correlations Analysis Results

		Performance	Physical Resources
Performance	Pearson Correlation	1	.668
	Sig. (2-tailed)		.002
	N	131	131
Physical Resources	Pearson Correlation	.668	1
	Sig. (2-tailed)	.002	
	N	131	131

Source: Survey Data (2018)

Based on the results shown in table 5, it is found the correlation coefficient between performance and physical resources was 0.668 with a significance level of 0.002. These results show that there was a strong positive correlation between performance of small and medium manufacturing enterprises and physical resources. In general, the results showed that there was a positive correlation between performance of small and medium manufacturing enterprises and all physical resources implying that an increase in strategic resources lead to an increase in performance of small and medium manufacturing enterprises in Kenya.

6. Conclusion

The findings of the research show that small and medium manufacturing enterprises in Kenya adopted production facility, ICT infrastructure to a great extent, and marketing infrastructure to a moderate extent while natural resources were used to a low extent. Overall, physical resources affected performance to a great extent and the study therefore concluded that physical resources have a significant influence on performance of manufacturing SMEs in Kenya. The study established that production facility and marketing infrastructure

significantly predicted performance while ICT infrastructure and natural resources failed to significantly predict performance of manufacturing SMEs in Kenya. Further, the results showed that physical resources were significant in predicting profitability and market share but insignificant in predicting sales volume and number of customers.

Recommendations of the Study

The study concluded that that physical resources have a significant influence on performance of manufacturing SMEs in Kenya. In particular the study found that ICT infrastructure, production facility and marketing infrastructure had the greatest influence on performance. The research recommendation is that the management of small and medium manufacturing enterprises in Kenya should ensure that they invest significantly in these resources so as to maximise the performance of these firms. Since natural resources only had a moderate influence of performance of the firm, the study recommends that the management should economically justify investment in acquisition of natural resources.

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