



Sustainability strategies and performance of public universities in Kenya



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ABSTRACT

The current operational setup in Kenya's Universities is a turbulent one and highly competitive market condition. To ensure survival and sustainability, public universities require to adopt and implement competitive strategies. Many scholars have investigated sustainability efforts by universities in pursuit of performance, however, it is still not clear how sustainable strategies have the greatest influence on the performance of Public Universities. Thus, the study set to establish the influence of sustainability strategies on the performance of Public Universities in Kenya. The study was anchored on resource-based theory. To achieve the objectives, the study was anchored on a pragmatic philosophy and mixed research design with a target population of 234 University top managers. Primary data was collected using a 5-point Likert-type questionnaire and an interview guide. Data were analyzed using descriptive and inferential statistics. Findings revealed that sustainability strategies had a significant statistical influence on the performance of public universities in Kenya. The regression analysis for composite results revealed that sustainability strategies (SS) alone account for 53% of the variation of performance of Public Universities ($R^2=0.53$, $t=7.68$, $p<0.05$). Regression analysis for individual results, cost reduction (CR) ($R^2=0.518$, $t=18.07$ p, <0.05), collaboration (C) ($R^2=0.418$, $t=2.7$ p, <0.05) and diversification (D) ($R^2=0.218$, $t=8.07$ p, <0.05). This study concluded that implementation of sustainability strategies (cost reduction, diversification, and collaboration) are essential strategies Public Universities can use in their endeavor to improve their performance.

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Introduction

The legal frameworks for the Universities have significantly changed with the implementation of the new constitution of 2010. The establishment of the Universities Act and the Commission for University Education (CUE) has taken the legal framework to a new dimension. The Universities had to meet the stipulated requirements in order to be awarded Charters. In the recent past, there has been an increased competition between public and private universities in Kenya. There has also been an increased presence of foreign Universities in the country. These developments have led to increased competition for qualified staff, scholarships, and research and development fund CUE (2019).

According to Porter (2017) sustainability strategy is the search for a favorable competitive position in the industry and aims at establishing a profitable and sustainable position against forces that determine industry competition. A University is said to have a competitive advantage whenever it has an edge over its rivals in securing customers and defending against competitive forces (Thompson and Strickland, 2011). Competitive advantage comes from the value that University creates for their customers that exceed the cost of producing it. University create value by performing a series of activities that he identified as a value chain (Thompson and Strickland, 2011).

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Bogt and Scapens (2012) indicated that the concept of sustainability for Universities and other public institutions is essential in the light of the increasing importance of the public sector contribution to economic growth. Despite this important role during recent years, the public funding of the Public Universities in most countries has not increased, or at least not increased sufficiently to finance new investments (Porit, 2015). This seems strange but is comprehensible when considering that Universities have to compete with other priorities in public. Budgetary restrictions have been imposed by national governments as well as the aspiration of policy makers to introduce more “rational” management with the main objective of improving efficiency, effectiveness, and accountability (Bogt and Scapens, 2012).

There is increasing indication that the internal management of Public Universities in Kenya is in a state of crisis. Despite the fact that the system of University governance is now well established with its components of Chancellor, University Council, Vice-Chancellor, Senate, staff and students. Universities, whether political or administrative are being emptied of their substance, their Statutes are ignored and their governing rules are side-stepped and therefore unable to implement their sustainability strategies outlined in their strategic plans (Mwebi and Simatwa, 2011).

Literature Review

Theoretical Review

This study was anchored on Resource Based View theory as defined by Rothaermel (2012). The theory emphasizes resources of a university as fundamental determinants of performance and sustainability. It is a theoretical approach that considers strategies like diversification, cost reduction and collaboration as a way of seeking new uses for resources already existing or filling gaps in the resource base of a University (Theuven, 2004). It is a perspective that drew more from (Penrose, 1959) theory of enterprise growth and was popularized by (Wernerfelt, 1984) and (Barney, 1991) in their works.

The traditional model of Resource Based View (RBV) was theorized in 1991 and is still acknowledged as one of the most capable models for studying and analyzing resource strategy relationships 20 years later (Barney, Ketchen and Wright, 2011). The view of the theory is that each University has a collection of unique resources and capabilities. Resources are fundamental in explanation of sustainability of Universities (Mwiria, 2004). The resources of a university can be categorized into three; physical, human and financials. These resources should be valuable, rare, inimitable and non-substitutable to enable a university to attain sustainability (Barney, 1991). The perspective of RBV as remarked by (Andreu, Claver and Quer, 2008) is that the growth of a university requires a balance between exploiting the already existing resources and developing new ones. RBV leans towards the University's sustainability, since it focuses on exploitation of its unique resources.

Public Universities have capabilities which can be shared among the departments by transferring them from one department to another thus achieving synergy and hence giving a university an edge. Public Universities capabilities are complex bundle of skills and knowledge that have been accumulated over time and are exercised through processes that enable them to coordinate their activities and make use of their assets (Day and Nedungadi, 2004).

Diversification strategies allow Universities to start other revenue streams through commercialization, consultancies and customized course to improve the ability of the University for sustainability. This could also be creating new capabilities or changing the capabilities that are already in existence (Holcomb, Holmes and Hitt, 2006). Collaboration strategy is through the sharing of facilities and manpower and aims at increasing the share of the market thus economies of scale can be achieved. It can also be achieved through use of related diversification as this facilitates a university to assemble a mutually reinforcing business portfolio since resources that are critical can be shared among the units. According to Prahalad and Hamel (1990), related product diversification leads to higher University performance compared to a focused University as the Universities can maximize their resources across business units to realize additional returns. Universities using related diversification strategy can outperform those using unrelated diversification strategies Hitt, Hoskisson and Kim (1997). This is to the extent that the key to superior performance from a diversification strategy depends on the University's ability to share resources; an unrelated diversified University is unlikely to have resources that can be useful to all its business units. Asset specificity in a University's resources may bring sustainable competitive power to their owner relative to competitors, but also create a challenge on the other hand especially on the University's ability to transfer these resources to new application (Montgomery and Wernerfelt (1988). University sometimes may not be in a position to use the available resources in new ventures especially where the new ventures require other resources different from what the University has. Asset specificity leads to several empirical predictions that revolve around the concept of relatedness of diversification activities: the more closely those activities are related or complementary, the more profitable diversification is expected to be. According to (Foss and Christensen, 2001), diversified Universities can create spill overs since the values of resources in one industry increases due to investment in another industry.

Previous studies have revealed that analysis of internal resources can enable Universities to determine their potential or realize sources of competencies and capabilities, and thus a university can achieve sustainability if its resources are inimitable by its competitors Barney (1991). Financial resources have the highest degree of flexibility and are suitable for both related and unrelated product diversification. However, sources of these finances should be considered as they have varying implications to the University.

In many Universities, managers use internal funds for unrelated diversification. The RBV theory has been criticized for some reasons despite its increase in literature devoted to its advancement conceptually and empirically. The reasons are first; from the perspective of modern strategic management (Penrose, 1959) understanding of sustainability it missed out on how Universities developed sustainable superior products, but instead adopted a frame work for seeking profit. Second, RBV has been regarded as a static theory as it fails to address the fundamental issue of how future resources can be created or how the current stock of valuable, rare, imperfectly imitable and imperfectly sustainable resources can be refreshed in an unstable environment (Priem and Butler, 2001). On the same note according to Wasiamsom's (1985) assertion that although resources can be exploited through contracts, due to their asset specificity nature it is sometimes almost impossible to contract in the market transactions with them.

The theory has also been criticized for being too abstract and therefore lacking operational validity. Third, like the Porter's five forces model RBV cannot account for sustainability of universities in highly dynamic markets. The unique path dependent resources can be leveraged across related product lines and provide higher rents. For instance, physical or tangible resources are highly inflexible because they can only be used in a few similar industries. Therefore, if a university has an excess physical capacity, it is very unlikely that the University was engage in unrelated diversification Chatterjee and Wernerfelt (2001). This is because some physical or tangible resources are very inflexible in their use; however, the flexible ones might also be limited in their use. Capabilities such as managerial expertise have the potential to create value when shared across businesses Miller (2006). This theory informs the product diversification and cost strategies. Chatterjee and Wernerfelt (2001) assert that the type of diversification strategy depends on the University's resource specificity as this dictate which product diversification strategy a University can adopt. It can adopt either related or unrelated product diversification strategy. If the University is well endowed with physical resources, then this implies that it can only venture in related products. However, finances are highly flexible and this would allow a university to venture in both related and unrelated.

Additionally, a resource that can only be used in one product is not suitable for diversification into unrelated businesses but rather in related businesses. In the resource-based approach, managerial expertise has the potential to create value when shared across businesses (Miller, 2006). This expertise if well managed can benefit the different business units of a University. Collaboration strategy can also be adopted especially by a University that is well endowed with facilities and manpower as it can share with its competitors with the aim of increasing its market share which in turn enables a University to achieve economies of scale.

Kenya's public University system has experienced very high rates of growth which have not been accompanied by a commensurate rise in the level of funding. This growth of universities in the face of budgetary deficits and manpower surpluses is largely a product of the insatiable demand for higher and higher levels of education. The government seems to have exploited such demand and politicized decision-making in the expansion of university education whose effect appears to be a serious decline in the performance of Public Universities measured by the research grants, community engagement and completion rate of graduates coupled with acute shortage of facilities and teaching personnel.

Empirical Review

A University possesses sustainable competitive advantage when it has value creating processes and positions that cannot be duplicated or imitated by other Universities Lippmann (1982). It refers to the determination of the purpose and the long term objectives of an enterprise to have and adapt courses of action and allocation of resources necessary to achieve desired lead in the market Thompson and Strickland (2003).

Lippmann and Rumelt (1982), considered a competitive advantage to be sustained only if it continues to exist after efforts to duplicate that advantage have ceased. The development of sustainable competitive advantage lies at the core of strategy development Lynch (1997). For a University to have competitive advantage, it must have business strategies that improve the competitive position of its products and services. A business strategy can be too competitive if it involves battling out with other competitors or cooperative, if it involves working with one or more competitors to gain advantage against other competitors or both Johnson and Scholes (2003).

According to Pearce (1997), Sustainable competitive advantage involves every aspect of the way that University competes in the market place. Its real benefits come from advantages that competitors cannot easily imitate. Hence to be sustainable, competitive advantage needs to be more deeply embedded in the University in terms of its resources, skills, culture and investment over time. It involves seeking something unique and different from competitors (Hill and Jones, 2001). Sustainable competitive advantage is usually developed over time. It is based on stability and continuity in relationships between different parts of a university. The main reasons for analyzing competitors are to enable the University develop competitive advantage against them, especially advantage that can be sustained over time (Pearce and Robinson, 1997). The need for sustainable competitive advantage is due to rising and intense competition. The opportunity of universities to sustain competitive advantage is determined by their capabilities. These capabilities of a university need to be distinctive. Distinctive capabilities are those characteristics of a University, which cannot be replicated by the competitors, or can only be replicated with great difficulty, even after these competitors realize the benefits which they yield for the originating University (Pearce and Robinson, 1997). According to Thompson and Strickland (2003), distinctive capabilities can be of many kinds. University capital projects, leadership qualities for top managers, capital capabilities, statutory monopolies or effective patents and copy rights are particularly stark examples of distinctive capabilities. They also include strong brands, patterns of supplier or customer relationships and skills, knowledge and routines which are embed in teams. Reproducible

capabilities can be bought or created by any University with reasonable management skills, diligence and financial resources (Mwiria, 2004). Only distinctive capabilities can be the basis of sustainable competitive advantage (Thompson and Strickland, 2003).

Generic strategies are strategies expected of every University any time and they are applicable to all universities without exception. A University that gets stuck in the middle needs to decide a low-cost strategy in a broad or narrow market or offer a differential or unique product or service in a broader or narrow market. According to Porter (2008), cost advantages and differentiation combined seeks to achieve three generic strategies which are cost leadership, differentiation and focus. To understand this better one needs to know how each of this strategies work while comparing them with other strategies. One of Porter's generic strategies is cost leadership (Porter, 2008). This strategy focuses on gaining competitive advantage by having the lowest cost in the industry (Porter:1979: 1987b: 2008c). In order to achieve a low-cost advantage, University must have a low cost leadership strategy, low cost manufacturing, and a workforce committed to the low cost strategy (Malburg, 2000). The University must be wanting to discontinue any activities to other universities with a cost advantage (Malburg, 2000). For an effective cost leadership strategy, a university must have a large market share (Malburg, 2000). Differentiation is another one of Porter's key business strategies (Malburg, 2000). When using this strategy, a university focuses its efforts on providing a unique product or service (Hyatt, 2001). Since, the product or service is unique; this strategy provides high customer loyalty (Porter, 1985).

Pearce and Robinson (2007) contend that strategies dependent on differentiation are designed to appeal to customers with a special sensitivity for a particular product attribute. By stressing the attribute above other product qualities, the University attempts to build customer loyalty. As a result, such loyalty translates into a university's ability to charge a premium price for its products. The product attribute can also be the marketing channels through which it is delivered, its image for excellence, the features it includes and the services network that supports it. The third generic strategy is focus strategy. In a focus strategy, a university targets a specific segment of the market (Davidson, 2001; Porter, 2008). The University can choose to focus on a select customer group, product range, geographical area, or service line (Porter, 2008). For example; some European universities focus solely on the European market (Stone, 1995). Focus also is based on adopting a narrow competitive scope within an industry. Focus aims at growing market share through operating in a niche market or in markets either not attractive to, or overlooked by, larger competitors. These niches arise from a number of factors including geography, buyer characteristics, and product specifications or requirements. These generic strategies are not necessarily compatible with one another. If a university attempt to achieve an advantage on all fronts, in this attempt, it may achieve no advantage at all. For example, if a university differentiates itself by supplying very high quality products, it risks undermining that quality if it seeks to become a cost leader as well. Even if the quality did not suffer, the University would risk projecting a confusing image (Stone, 1995).

Based on the literature, many scholars have study on strategy implementation for sustainability of the firms. Mile and Snow (1978) study to operationalize sustainability strategies on performance for firms they generated a nominal scale hence regression model could not be used. The analysis was therefore limited to descriptive design with analysis done at the univariate level. The current study use data framework of a likert scale, considered to be an interval scale. A study by Christensen, Raynor and McDonald (2015) established that strategic choice was deliberate on winning, and concerned with creating and sustaining growth and other indicators of organizational performance. Being a case study, the study results relate exclusively to the organization concerned, with inferential statistics rendered irrelevant. The current study, using a mixed survey design, used inferential statistics as part of the analytical model.

A study by Wheelen and Hunger (2012) concluded that strategic actions are within the realm of strategy implementation, and that the performance of an organization is critically dependent on how well its chosen strategies are implemented but not of how great the strategy is. They further found that strategy implementation addressed the who, where, when and how of reaching desired levels of organizational performance. A similar determination was arrived at by Simerly and Mingfang (2000) who established those effective strategic choices and action were key antecedents of organizational performance. Nevertheless, neither of the two studies has focused on the influence of sustainable strategies and performance of Universities in Kenyan context. A study by Carton (2004) determined strategy implementation was the process through which strategic choices were translated into strategic actions in order to steer the organization in the desired performance. Strategic choice is the heart of strategy as it is concerned with strategy implementation; it is the glue that binds the ambitious aspirations of organization and organization performance together. How well the strategic choices are reduced into strategic actions dictates the outcome of an organization performance. However, the study had a stronger orientation towards strategy implementation rather than strategic choice. The current study focus on sustainable strategies and performance, rather than strategy implementation alone. A study by Viravaidya et al. (2001) titled "Strategies to Strengthen NGO Capacity in Resource Mobilization through Business Activities" concluded that NGOs can no longer rely solely on traditional good was and generosity of others to cover their costs. Some of the diversification strategic choices suggested by this study include; reaching out to new donors, redesigning program activities to include a cost-recovery component and making money through commercial ventures. The study however concentrated more on the financial performance of NGOs only. The purpose of this study therefore is to establish influence of sustainability strategies on performance of Public Universities in Kenya. The study also notes that most of studies conducted were among financial institutions such as commercial banks and NGOs but no known study has linked sustainability strategies and performance of public Universities. Hence, the study hypothesized that;

H₀: There is no significant influence of sustainability strategies on performance of Public Universities in Kenya



Figure 1: Conceptual Framework; Source: Author, 2021

Methodology

This study adopted a pragmatic research paradigm as the main philosophical underpinning. This paradigm assumes that knowledge arises from actions, situations, and consequences rather than antecedent conditions (Creswell, 2012) According to Morgan (2007) and Patton (2002), this philosophical underpinning is deemed fit as it allows mixed methods approach by permitting the researchers freedom to choose the methods, techniques, and procedures of research that best meet the needs and purposes of the research problem in question. The study adopted mixed method research and in particular convergent parallel design. The design enabled the researcher to simultaneously collect both quantitative and qualitative data, merge the data, and use the results to understand the research problem (Creswell and Plano Clark, 2011). The study surveyed (234) public chartered Universities in Kenya. Primary data was obtained through semi structured questionnaires and an interview guide which was tested for validity using content validity and reliability internal consistency via Cronbach's alpha coefficient (α) respectively. The questionnaire was designed on a five point Likert -type scale ranging from (1) - strongly disagree to (5) – strongly agree (Sekaran and Bougie, 2017); (Saunders, et al. 2017). Moreover, Pilot testing was done to ensure that the research tool was valid and reliable and also to improve its face validity Cooper and Schilder (2011). The target respondents were Vice Chancellor, Deputy Vice Chancellors, Registrars, Finance Officers and Quality Assurance Officers because they were best placed to answer the research questions.

In this study, data was analysed using descriptive statistics such as frequencies, means and standard deviation and presented inform of tables as well as inferential analysis using measures such as correlation and multiple regression analysis to establish the nature and magnitude of the relationships between the variables (Jobson, 2012). Correlation analysis was carried out to determine the nature and strength of the relationship that exist among the study variables (Glesne, 2015) while regression analysis was conducted using linear and multiple regression models to determine the extent to which corporate governance affect performance of public universities in Kenya. The multiple regression model was as follows.

$$Y = \beta_0 + \beta_1 X + \epsilon$$

Where

Y- Performance of Public Universities, β_0 = The intercept, β_1 = Regression coefficients shows the change in the value of Y from a unit change in X_{1a} , X- Level of implementation of sustainability strategies, ϵ = Random error (1)

Results and Discussions

The study used descriptive and inferential statistics to make conclusions on the relationship existing between the study variables. 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. sustainability strategies were operationalised through, cost reduction, collaboration and diversification as advised (Marcucci and Usher, 2011). The descriptive results were as shown in Table 1

Descriptive Statistics

In order to establish responses made to the research items, the mean and standard deviation were determined. The mean gave indications on the average direction of the variables for each construct, while the standard deviation provided information on the level of dispersion from the mean. A low standard deviation meant that most of the responses group were around the mean. Descriptive Analysis for Composite results of Sustainability Strategies

Descriptive Analysis

Table 1: Implementation of Sustainability Strategies

Indicator	SD		D		N		A		SA		M	SD
	N	%	N	%	N	%	N	%	N	%		
1. Level of cost reduction	5	2.9	11	5	39	24.1	6	20.4	78	48.1	4.1	1.0
2. Degree of collaborations	2	0	9	56	54	33.3	9	42.6	30	18.5	3.7	0.9
3. Level of diversifications	6	3.7	9	13	39	18.5	6	38.9	42	25.9	3.7	0.8
Mean of Means											3.8	0.9

Source: Field data (2021)

The results in table 1 recorded a mean score of 4.1 and a standard deviation of 1.0 The study found out that the respondents agreed with the fact that the Public Universities were making great efforts to reduce costs of running their affairs. Indicator two assessed the degree of collaborations that that Public Universities had engaged in. The results recorded a mean score of 3.7 and a standard deviation of 0.9. The study found out that the respondents agreed with the fact that there were a lot of collaborations with partners in the industry. Indicator three assessed the extent to which the Public Universities had diversified their activities. The results recorded a mean score of 3.7 and a standard deviation of 0.8. The study found out that the respondents agreed with the fact that the Public Universities had made enough efforts to diversify their activities.

The study computed the mean of the three indicators that extricated level of implementation of sustainability of strategies. The mean was 3.8 and a standard deviation of 0.9. The results indicated that the level of implementation of sustainability of strategies was high. This implied that the Public Universities have made enough efforts to implement sustainability strategies.

Further, results show that the highest level of implementation of sustainability of strategies was on cost reduction which recorded a mean of 4.1. These findings contradicted Kiptebut’s (2011) findings that cost reduction had low effect as a strategy on sustainability of Public Universities in Kenya. Emphasizing further the importance of cost reduction, Kamoche et al. (2004), noted that top University managers, believe that the more the University reduces cost, the more the future is guaranteed for sustainability.

The study findings concur with Marangu, Oyagi, and Gongera (2014) who investigated the effect of diversification strategy on university competitiveness on sugar firms in Kenya. Using regression analysis, the study found that firm performance is significant and positively related to diversification. The findings also concur with Schoar’s (2002) study who using a data set from the US Census Bureau’s Longitudinal Research Database found out a positive correlation between diversification and performance of the University. However, the findings contradict Phung and Mishra (2016) who did a study on the influence of corporate diversification on university performance of listed Universities in Vietnam over a period between 2007 to 2012. The results revealed that corporate diversification had a negative effect on the University performance.

The above views were also expressed by key respondents. Some had this to say about the level of implementation of sustainability strategies in public universities in Kenya;

“We are trying our best, However, a sustainable university is an institution as a whole or as a part, that addresses, involves and promotes, on regional or global level, the minimization of operations, economics, societal, and health negative effects in the use of their resources in order to fulfill its main functions of teaching, research, engagement and partnership, and stewardship among other as a way to helping society make the transition to sustainable life styles” (Key Respondent 1)

Descriptive Statistics: Performance of Public Universities

Table 2: Performance of Public Universities

Indicator	VL		L		M		H		VH		M	SD
	F	%	F	%	F	%	F	%	F	%		
Attraction of research grants	45	26.6	42	24.8	0	5.6	7	13	39	24.1	2.1	0.4
Community engagement	3	0	51	31.5	99	61.1	3	3.7	6	3.7	2.3	0.6
3Completion rate of graduates	9	5.6	48	29.6	66	59.3	2	3.7	3	1.9	2.4	0.9
Mean of Means											2.3	0.6

Source: Field Data (2021)

Table assessed the attraction of research grants in the Public Universities. The results recorded a mean score of 2.1 and a standard deviation of 0.4. The study found out that the respondents agreed with the fact that the research grant in Public Universities was low. Indicator two assessed community engagement in Public Universities. The results recorded a mean score of 2.3 and a standard deviation of 0.6. The study found out that the respondents agreed with the fact that the community engagement in Public Universities was low. Indicator three assessed the completion rate of graduates in Public Universities. The results recorded a mean score of 2.4 and a standard deviation of 0.9. The study found out that the respondents agreed with the fact that the completion rate of graduates in Public Universities was average.

The study computed the mean of means of the three items that extricated the performance of Public Universities. The mean of means was 2.3 and a standard deviation of 0.6. The results indicated that the level of performance of Public Universities was low. This low performance by Public Universities were clearly explained by some key responses. For instance, some had this to say about the performance of their universities.

“We are not doing well on strategic plan implementation, which every university has outlining the strategies to be implemented every year”. (Key Respondent 2)

The findings are consistent with Odhiambo (2014) who observes that the performance of Public Universities in Kenya for sustainability attracts divergent responses from different people. Some argue that higher education yields huge dividends and thus should be financed privately, while others perceive it as a public good that ought to be funded by the state. Prior to 1970, the Kenyan government paid fully for University education (Munene and Otiemo 2008). The idea was to create a highly trained workforce that could replace the departing colonial administrators and which was achieved by bonding the graduates to work in the public service for three years (Nafuko 1995).

However, (Wangenge ,2015) points out that the poor performance by Kenyan Public Universities was a result of change to the free model of financing University education in Kenya that soon proved unsustainable amid rising demand and the economic difficulties of the early 1970s caused by soaring oil prices. The model triggered a paradigm shift in which cost-sharing was introduced in the 1974/75 academic year in the form of loans given to students for meeting personal expenses while the government continued paying for tuition. In 1988, further cost-sharing was introduced on tuition fees following high pressure sustained on the government by supranational institutions namely the World Bank (WB) and International Monetary Fund (IMF).

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) which indicates how well the items in a set are positively correlated to one another Nunally (1978). The study calculated the reliability of the study variables and the results are as shown in Table 3.

Table 3: Validity and Reliability Analysis

Variables	Measures	Number of Dimensions	Cronbach's Alpha	Comments
Sustainability strategies	Cost reduction	5	0.881	Reliable
	Collaboration	5		
	Diversity	5		
Total		21		
Performance measures	Completion rate of graduates	3	0.787	Reliable
	Attraction of research grants	3		
	Community outreach	3		
Total		9		

Source: Researcher (2021)

The results in Table 3 show that Cronbach's Alpha coefficient ranged between 0.787 (performance measures) and 0.881 (Sustainability Strategies). The results indicate that measurement scales used were sufficiently reliable and measured the study variables adequately. The reliability coefficient for all the constructs used in this study by far exceeded the 0.5 minimum level of acceptability recommended by Hair et al. (1998) and are above the 0.7 range advocated by Nunally (1978); thus, are reliable and acceptable for further analysis. The study constructs were highly correlated to each other.

Regression Analysis Results

The objective of the study was to establish the influence of sustainability strategies on performance of public universities in Kenya. First, the influence of individual variables of sustainability strategies that is cost reduction, collaboration and diversification on performance of public universities in Kenya was tested. This followed composite indicator of sustainability strategies and effect on the performance of public universities.

Table 4: Regression Results for the Effect of Cost Reduction on Performance of Public Universities in Kenya

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error				Lower Bound	Upper Bound
(Constant)	1.515	.135		18.07	.000	1.600	2.120
Cost Reduction	.534	.039	.723	8.022	.000	.303	.451

a. Dependent Variable: Performance of Public Universities

Table cont'd

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.720 ^a	.518	.447	.3101	.310	7.26	1	224	.000

- a. Predictors: (Constant), Cost Reduction
- b. Dependent Variable: Performance of Public Universities

Source: Field data (2021)

According to results in table 4, R² was 0.518 meaning that 51.8 % of variance in performance accounted for by the level of cost reduction. 48.2 % was explained by other factors not considered in the study.

Further, the results revealed statistically significant results for the independent effect of cost reduction on performance (p-values < 0.05), R² = 0.518, F=7.26, p<0.05), indicating goodness of fit for the regression model and producing a statistically significance beta coefficient of β=0.534, (t=18.07, p<0.05).). The results reveal a unit increase in level of cost reduction is responsible for increasing performance of public Universities by 72.3%. These can be summarized using the following equation

$$UP = 1.515 + 0.534 CR + e$$

The results are consistent with the study by Salas and Cannon-Bowers (2011) which indicated that cost reduction strategy generates competitive benefits for an organization but also delivers innovations and openings to learn new technologies and advance employee knowledge, skills and organization performance. Similarly, the findings are consistent with Ogolla (2013) which noted that when organizations implement cost reduction strategies it improves its performance by increasing its productivity, being flexible in some other function, quality products, reduction of operating cost, advancement of technology and customer satisfaction as well as the findings of Maina (2013) that cost cutting measures improves performance. The changing business environment has brought about so many changes in organizations including policies on cost management (Richtel, 2008). Robert (2009) stated that a company with adequate cost structure possesses the higher chance of attaining its profit target. The increasingly competitive global economy pushes firms to exploit all of their available resources as a means of achieving competitive advantage (Andersen, 2009). Innes, et al (2013) assert that the survival triplet today for any company is how to manage product or service cost, quality, and performance.

Table 5: Regression Results for The Effect of Collaboration On Performance of Public Universities

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error				Beta	Lower Bound
(Constant)	1.432	.122		12.07	.000	1.400	1.120
Collaboration	.565	.029	.557	2.766	.000	.203	.351

- b. Dependent Variable: Performance of Public Universities

Table 5 Cont'd

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.620 ^a	.418	.347	.2101	.210	6.26	1	124	.001

- c. Predictors: (Constant), Collaboration
- d. Dependent Variable: Performance of Public Universities

Source: Field data (2021)

According to results in table 5, R² was 0.418 meaning that 41.8 % of variance in performance accounted for by the level of collaboration. 88.2 % was explained by other factors not considered in the study.

Further, the results revealed statistically significant results for the independent effect of collaboration on performance (p-values < 0.05), $R^2 = 0.418$, $F=6.26$, $p<0.05$), indicating goodness of fit for the regression model and producing a statistically significance beta coefficient of $\beta=0.565$, ($t=2.7$, $p<0.05$).). The results reveal a unit increase in level of collaboration is responsible for increasing performance of public Universities by 55.7%. These can be summarized using the following equation

$$UP = 1.432 + 0.565 C + e$$

The findings imply that an increase collaboration leads to a significant increase in performance of public universities. The findings are consistent with Huselid (2015) who argued that for public universities to improve on their performance in terms of research grants, productivity, enhanced quality and market share, absence and conflict, reduced turnover, they need to have many collaborations and networks. The findings also agree with Bhatt (2010) that collaboration and partnerships can improve business process and plays a critical role in an organization as well as the argument by Bolat and Yilmaz (2009) who noted that networking is the key to the success of an organizational performance.

Table 6: Regression Results for The Effect of Diversification On Performance of Public Universities

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	1.225	.1111		0.766	.000	1.100	1.120
Diversification	.265	.018	.265	8.07	.000	.103	.251

c. Dependent Variable: Performance of Public Universities

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.320 ^a	.218	.347	.2101	.210	3.26	1	124	.001

e. Predictors: (Constant), Diversification

b. Dependent Variable: Performance of Public Universities

Source: Field data (2021)

According to results in table 6, R^2 was 0.218 meaning that 21.8 % of variance in performance accounted for by the level of cost reduction. 78.2 % was explained by other factors not considered in the study.

Further, the results revealed statistically significant results for the independent effect of collaboration on performance (p-values < 0.05), $R^2 = 0.218$, $F=3.26$, $p<0.05$), indicating goodness of fit for the regression model and producing a statistically significance beta coefficient of $\beta=0.265$, ($t=8.07$, $p<0.05$).). The results reveal a unit increase in level of cost reduction is responsible for increasing performance of public Universities by 26.6%. These can be summarized using the following equation

$$UP = 1.225 + 0.265 D + e$$

Public University education in Kenya is currently experiencing serious financial crisis. This is apparent because budgetary allocation for the higher educational sector has been on the decline. The government has not been able to meet the 26% recommended by UNESCO. The situation has been aggravated largely due to the economic recession that the nation is facing and more so with increasing competition of education with other sectors for public monies. (UNESCO,2019)

This study is collaborated by Babalola (2013), emphasizing the need for diversifying sources of funding tertiary education, noted that today's world requires that higher institutions of learning seek innovative ways of financing responsibilities. Koryakina, Teixeira and Sarrico (2012), averred that revenue diversification activities were recognized as drivers of institutional dynamics and development. Also, Maisaiti (2019) argued that diversification of revenue sources has the potential of stabilizing universities by reducing their vulnerability to fluctuations associated with government financing. Similarly, Todowede (2014), supporting the need to diversify the financing of higher education, observed that the political, social and economic factors, which are currently having significant impact on the world economy have necessitated the need to diversify the resources of education funding, since the reliance on a single source of revenue can inhibit educational growth. However, sustenance of higher education in Kenya requires all stakeholders which include parents, guardians, students, the civil society, the private sector and non-governmental agencies and the general public to be involved.

Further, adequate funding is a prerequisite to sustainability of university education in Kenya. Inadequate funding can seriously destabilize the university system in realizing sustainability of its programmes and other activities. Revenue diversification according

to World Bank (2019) is one mechanism that could be used to improve sustainability of higher educational institutions. Sustainability of public universities in Kenya is a necessity, even more so in the present times, due to the dynamics of our changing society. This need is borne out of the desire to respond to the demands of globalization of equipping present and future generations with the knowledge, attitudes, values and skills to cope with the challenges which lie ahead of them in the era of global competitiveness (Ekpoh, 2017).

Testing Hypotheses

The study tested the **Hypothesis** that there is no significant influence of sustainability strategies on performance of Public Universities in Kenya.

Table 7: Coefficients of Level of Implementation of Sustainability of Strategies

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.84 E-17	0.09		0.00	1
	Sustainability strategies	0.73	0.10	0.73	7.68	0.00

a Dependent Variable: Performance of Public Universities

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.73	0.53	0.52	0.69
	0.73	0.53	0.52	0.69

a Predictors: (Constant), sustainability of strategies

Source: Author (2021)

According to results in table 7, R² was 0.53 meaning that 53 % of variance in performance accounted for by the level of sustainability strategies. 47 % was explained by other factors not considered in the study.

Further, the results reveal statistically significant results for the independent effect of sustainability strategies on performance (p-values < 0.05). R² = 0.53, p<0.05) indicating goodness of fit for the regression model and producing a statistically significance beta coefficient of β=0.73, (t=7.68, p<0.05). The results reveal a unit increase in level of implementation of sustainability strategies is responsible for increasing performance of public Universities by 73 %. These can be summarized using the following equation.

$$UP = 1.84 + 0.73 SS + e$$

The t-statistic for the regression model was 7.68 which was greater than 1.96 with p less than 0.05. Therefore, for the hypothesis that there no significant influence of sustainability strategies on performance of Public Universities in Kenya, the study found the relationship to be statistically significant. Therefore, rejecting the null hypothesis and accepting the alternative hypothesis that there is significant influence of sustainability strategies on performance of Public Universities in Kenya.

The findings concur with Ravichandran and Bhaduri’s (2015) study on firms in the Indian manufacturing sector whose results showed that highly diversified firms performed better on account of horizontal diversification which had a positive effect on their performance. It was also in agreement with findings of Kimani et al., (2016) which evidenced that implementation of sustainability strategies contributed significantly to the competitive performance of firms in the rabbit industry while diagonal integration was found to be insignificant. Further, the findings concur with arguments by Besanko et al. (2007) who allude that Universities that choose to implement the sustainability strategies by cost reduction, diversification and collaborations have a very high chance of remaining afloat.

It is therefore concluded that combined effect of sustainability strategies components has a greater effect on performance of public universities in Kenya than isolated effect of cost reduction, collaboration and diversification. The findings are consistent with the observations by Millet (2006) that combined effect strategies rather than individual practice leads to more performance and productivity of an institution.

Correlation Results

To establish the relationship between implementation of sustainability strategies and performance of Public Universities in Kenya. Pearson product moment correlation coefficients were used to establish whether a relationship existed between the level of implementation of sustainability of strategies and performance of Public Universities. To start with the three dimensions of implementation of sustainability of strategies were correlated with performance of Public Universities. All the correlation was deemed significant at a set value of 0.05.

Table 8: Correlation Analysis on the implementation of sustainability strategies and Performance of Public Universities in Kenya

	Performance of Public Universities	Cost reduction	Collaborations	Diversifications
Performance of Public Universities	1			
Cost reduction	.744**	1		
Collaborations	.729**	0.225	1	
Diversifications	.609**	.332*	.453**	1
	0.00	0.102	0.001	

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

Source: Field data (2021)

Table shows that cost reduction had the highest positive relationship with performance of Public Universities ($r=0.744$, $p=0.00$) followed by the degree of collaborations ($r=0.729$, $p=0.00$) and diversification had the lowest positive relationship with the performance of Public Universities ($r=0.609$, $p=0.00$). These results show that there a strong positive correlation between performance of public universities in Kenya and implementation of sustainability strategies. This implied that an increase in the level of implementation in all the three dimensions of the of sustainability of strategies leads to an increase in performance of Public Universities. Further, the results indicate that cost reduction is the most efficient way of improving performance of public universities for sustainability.

The findings of this study concurs with findings by Forbes and Lederman (2010) on the US airline industry which revealed that sustainability strategies had a positive effect on the operational performance of the large US airlines. They also concurred with study findings of Kimani et al. (2016) whose findings revealed that sustainability strategies contributed significantly to the competitive performance of the universities. A respondent had this to say.

“The university has adopted cost reduction, recently we closed some of our campuses and merged departments that share some commonalities. We have very many collaborations with local and international partners who have been, some of the partners have been assisting us with their facilities for students to carry their research work” (Key Informant 3)

“I think we have done well, we have implemented all those strategies, if you look at our strategic plan, you will find cost reduction as a strategy, collaborations, and increasing revenue streams which is basically what you are asking on diversification. Although we may be having challenges here and there, we have done our best in implementing those strategies” (Key Informant 4)

Further, the findings concur with studies done by Delios and Beamish (1999) and Tallman and Li (1996) which found a positive relationship between sustainability strategies and University performance. However, the study findings contradicted those of Kumar (1984) and Njuguna (2013) which revealed that sustainability strategies and University performance had a negative relationship. This is alluded to the fact that the regional and global expansion may have to take some time to break even and therefore net income of University’s branches would result into a negative relationship. The current study findings are also in contradiction with Wan (1998) as his study findings showed that sustainability strategies had no effect on the University performance

Conclusions

The study established a positive significant relationship between sustainable strategies and performance of Public Universities in Kenya. This is achieved through implementation of the strategies that suite the university better. Similarly, Universities are dealing with the challenge of sustainability in many different ways. Approaches may vary from aiming to function financially independent to formulating strategies and goals for sustainability. The study contributes to strategic management literature and specifically on strategic management by providing empirical evidence for reference by scholars and managers of corporations. Also, the study contributes to resource-based theory by examining the implication and allocation of resources on sustainability strategies studied under cost reduction, collaboration and diversification on performance of public Universities. The study established a positive significant relationship between sustainable strategies and performance and performance of Public Universities in Kenya. The study therefore recommended that top university managers and Universities that are yet to implement the sustainability strategies on cost reduction, collaborations and diversification should implement them in order remain sustainable in this competitive and turbulent business environment.

In terms of practice, the study recommends that a university should establish cautiously which sustainability strategies to formulate and implement in order to improve their performance for sustainability. Management can decide to adopt related sustainability strategy in order to capitalize on the synergies derived from the use of such a strategy. The University can also adopt strategies which

ensure no additional costs but an increase in the number of revenue. The study further recommended that universities should indeed adopt sustainability strategies in order for them to optimally use any under-utilized resources and also put slack resources into good use.

The study further suggests that other studies be conducted among private universities in Kenya to determine if there are relational factors that influence the relationship between sustainability strategies and performance of private Universities in Kenya.

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