

University Teaching and Research for Development in Africa: Industry Linkages

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ABSTRACT

This study sought to contribute to knowledge by assessing the extent to which industry linkage strategies influence performance of universities in Kenya. Resource based view was used as the main theory anchoring the study. Cross-Sectional survey was adopted as the research design. The population of the study consists of sixty five (65) public and private universities incorporated in Kenya. Out of this, a sample of forty seven (47) universities which had undergone at least one graduation cycle was taken. Primary and secondary data was collected using semi-structured questionnaires and review of existing university documents and regulatory bodies websites respectively. The instrument was tested for reliability and found fit. Analysis was undertaken using correlation and regression analyses to test hypotheses. Analysis of variance was also used to determine the differences between group means. Coefficient of variation (C.V) was also used to measure variability and consistency in scores of different universities when standard deviation and arithmetic means are compared. Out of the targeted forty seven (47) respondents from forty seven (47) universities, a total of forty four (44) questionnaires were returned, representing 94% response rate. It was established that positive and significant correlations existed between industry linkage strategies and university performance. The results provided have rich implications for theory, policy and practice. The significance of firm resources and linkage components in strategy formulation and implementation cannot be overlooked. The findings offer insights to university authorities and policy makers by answering the question on the role of industry linkage strategies and university performance. The key recommendation that the study offers to the stakeholders, is the need to consider industry linkage aspects during strategy formulation and implementation process in order to substantially exploit the synergies resulting from enhanced symbiotic correlations between university education and the industry. The main limitation of this study is that primary data was collected from only one respondent per university but common methods bias was mitigated through the use of additional secondary data to validate primary data. Thus, the limitation did not affect the credence of the results as presented and discussed. Secondly, although it was not possible to include all the determinants of institutional performance, balanced score card was appropriately used to represent financial and non-financial aspects that constitute performance indicators.

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Introduction

Appropriate choice of strategy and implementation is necessary to enhance superior organisational performance. Studies exploring linkages between higher education and industry have shown that having a strong symbiotic relationship between the two would enable the synergies to be exploited. This implies that performance of a higher learning institution should be measured in terms of quality of linkage it has with industry demands. The industry continually demands for relevant and competitive human resources from higher learning institutions (Ginies and Mazurelle, 2010). According to Eshiwani (1999), a university can only remain relevant if it responds promptly to the changing technology and emerging industry demands, by formulating proper linkage strategies. Muniyoki et al. (2011) noted that firms are reluctant to pay for new ideas, while universities tend to become too profit oriented as opposed to transferring the inventions to seek relationships with companies. Strategy consists of the means an organization chooses to move from its present state to its future. It focuses on future performance as an organizational link with the external environment and considers internal resources in order to attain a competitive advantage. The industry cannot afford to operate in isolation and must foster linkages with universities. Universities on the other hand, cannot ignore the industry which is the consumer of the knowledge and products generated. Strategies used to enhance the linkage between higher education and industry must revolve around curriculum orientation, teaching and

learning focus, industrial attachment focus and collaborative research (Karanja, 2011). Different organizations use varying measures of performance. These measures may be quantitative or qualitative. Kaplan and Norton (2008) introduced balance scorecard which considers other non-financial measures of performance such as internal business process, learning and growth and customer perspective. The industry constitutes all the stakeholders who exert influence and with interest in the university education. It includes the business, agricultural and public sectors that consume university education by providing employment opportunities to university graduates. Barro (1991) noted that creating a more productive higher education system must also keep a close eye on the quality of programmes and the value of the credentials they produce towards meeting the industry demands. Churning out additional degrees and certificates may well be an illusory victory if increases in productivity come at the expense of programme quality or rigor. Furthermore, if the additional credentials produced do not match up with industry demands, increases in attainment may not pay the expected dividends. It is postulated that appropriate linkage strategies between universities in Kenya and the industry would ensure that expectations of the industry are met (Martin, 2000).

Hypotheses of the Study

The following hypotheses are derived from the literature debate.

Hypothesis 1: There is a significant relationship between

curriculum orientation and university performance.

Performance is more significant than there separate effects.

Hypothesis 2: There is a significant relationship between industrial attachment focus and university performance.

Hypothesis 3: There is a significant relationship between teaching and learning focus and university performance.

Hypothesis 4: There is a significant relationship between collaborative research and university performance.

Hypothesis 5: The joint effect of linkage strategies on University

Conceptual Framework

An integrated framework to respond to the knowledge gaps identified in the literature review in this study has been designed with two components. While linkage strategies constitute independent variables, organisational performance constitutes dependent variable. The study determined the direct relationship between linkage strategies and organisational performance.

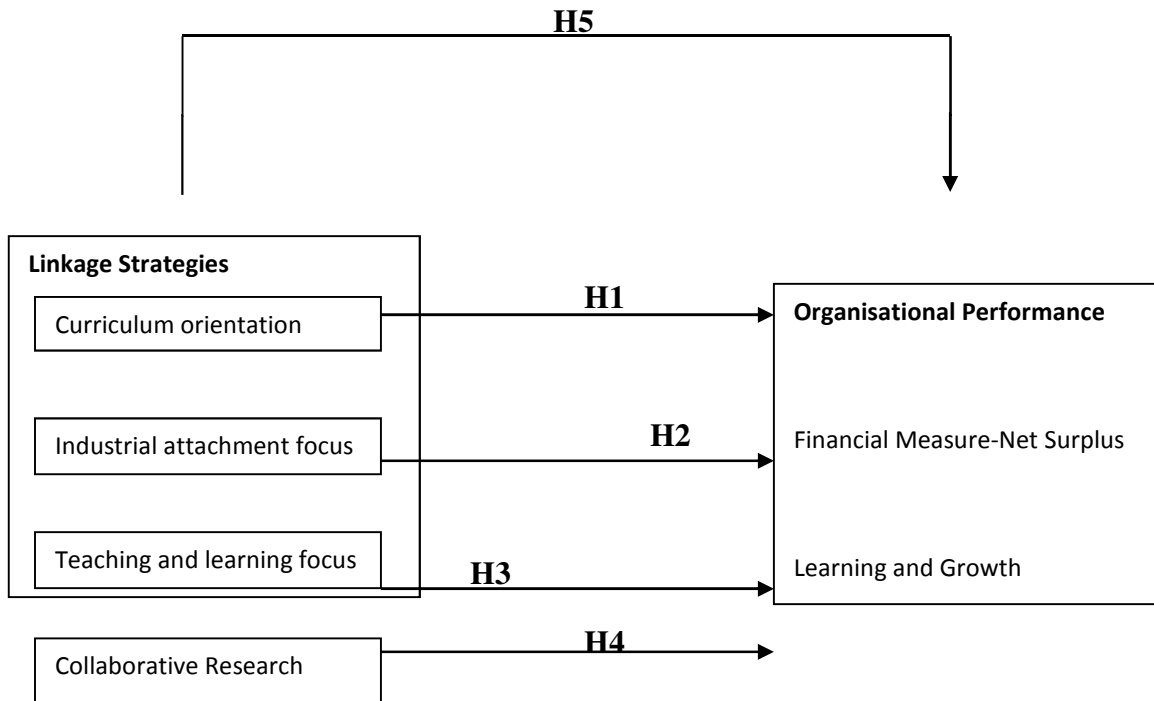


Figure1: Conceptual Model

Methods

The study adopted descriptive cross-sectional survey design. According to Irungu (2007), descriptive cross-sectional survey is appropriate where the overall objective is to establish whether significant associations among variables exist at some point in time. The cross-sectional approach involved collecting and comparing data from the phenomena as at the time of study. The combination of qualitative and quantitative data enabled adequate explanation of the variables and predictions in their behaviour without resorting into inquiries of the temporal effect. The design enhanced uniform data collection and comparison across respondents. Correlation analysis was used to check the nature and direction of relationships while regression analysis was used to establish mathematical models and test formulated hypotheses. ANOVA was also used to determine the differences between group means. Coefficient of variation (C.V) was also used to measure variability and consistency in scores of different universities when arithmetic mean and standard deviation is compared. As at the time of this study, there were a total of sixty five (65) universities operating in Kenya (Commission for University Education, 2013). Thus, population of this study comprises 65 public and private universities incorporated in Kenya. From the 65, forty seven (47) universities which had undergone at least one (1) graduation cycle were sampled. Out of this, twenty two (22) were public and twenty five (25) were private universities. This sample size of 47 constitutes 72% of the population and it is

way above the required 10% as a representative sample for a homogenous population. According to Kothari (2004), a population sample constituting 10% and above is appropriate if the researcher is dealing with a homogenous population.

Results

The primary and secondary data gathered were cleaned, coded, sorted, analyzed, interpreted and presented in different tables.

The mean scores for the variables of linkage strategies were compared by computing independent sample t statistic for equality of means at 95% level of confidence and 42 degrees of freedom to test the significance of the difference between sample means of private and public universities. The results show that private universities in Kenya have stronger linkage strategies with mean score of 3.7 out of 5 compared to public universities with mean score of 3.3 out of 5. Since the average value of independent sample t-test (-8.43) is less than 2.5 and the significance level (0.498) is greater than 0.05, there is significant difference between the linkage strategies' mean score of private universities compared to that of the public universities. The average coefficient of variation of linkage strategies are more consistent and stable with a lesser variability of 34% compared to a larger variability of 41% from public universities.

On curriculum orientation, four questions were formulated to investigate on effectiveness of curriculum development and review policy, frequency of curriculum

review and the extent of participation of and involvement of stakeholders and professional bodies in curriculum development and review process. Results show that there is no significant difference in effectiveness of curriculum development and review policy between public and private universities (mean score of 3.4 by private and 3.3 by public universities). However, private universities had greater consistency with a lesser variability of 35% compared to a very wide variability of 47% in public universities as far as the effectiveness of curriculum development and review policy is concerned. Private universities scored higher in frequency of curriculum review (3.5 and lesser variability of 33%) compared to a mean score of 3.1 and wider variability of 33% by public universities. Private universities also obtained higher mean scores (3.4 and 4.2) in stakeholder and professional bodies' participation and involvement in curriculum development and review process respectively. In overall, private universities recorded stronger linkage strategies (mean score of 3.6 and variability of 35%) compared to public universities (mean score of 3.2 and variability of 41%) in the area of curriculum orientation.

On industrial attachment focus, six questions were formulated to investigate on existence of an effective industrial attachment policy and adherence to it, participation and involvement of stakeholders in every aspect of industrial attachment process, relevance of industrial attachment to the students' field of study, monitoring and assessment of

students on industrial attachment. Results show that there is no significant difference in the industrial attachment focus variable mean scores and CV values between private and public universities. However in overall, the universities recorded the highest mean score of 4.2 on relevance of industrial attachment to the students' field of study. This implies that the universities ensure to a very large extent that any student on industrial attachment is placed in an industry relevant to his or her area of specialisation.

Nine questions were formulated to investigate on teaching and learning focus. The questions included existence of student centred teaching and learning methods, frequency of evaluation, review and maintenance of teaching and learning facilities, access to library resources, computer to student ratio, access to laboratory equipment, access to the field equipment, qualification and experience of academic staff, relevance of teaching and learning technology and teaching of industry benchmarked content. The results show that there is absolutely no difference in all the teaching and learning focus variable mean scores and CV values between private and public universities. However in overall, the universities recorded the highest mean score of 3.9 on relevance of teaching and learning technology. However, this variable had a higher variability of 41% compared to other items. This suggests higher level of inconsistency and instability in this variable. Access to the field equipment and qualification and experience of academic staff were the most consistent and stable

indicators of teaching and learning focus with variability of 29%.

On Collaborative research, seven questions were formulated to investigate on existence of an effective research policy, number of university-industry collaborative research undertaken, implementation of research findings, Link between postgraduate research and industry, presentation of research findings to the public, fusion of research findings in the curriculum and frequency of research publications. Results show that private universities recorded stronger linkage strategies in the area of collaborative research (mean score of 4.1 and variability of 36%) compared to public universities (mean score of 3.3 and variability of 38%). Private universities also recorded higher mean scores in all the seven determinants of collaborative research compared to public universities. Apart from the question on the number of university-industry collaborative research where public universities have a lower variability of 32% compared to 39% in public universities, the private universities recorded lower variability in all the other six determinants, indicating greater consistency and stability in the responses compared to public universities.

The data collected on university performance was converted to Lickert type scale for regression purposes. Compared to arithmetic and harmonic means, Aiken and West (1991) noted that geometric mean (GM) is a specialised measure preferred when calculating average proportional changes $\sqrt[n]{\text{in variables over a some period.}}$

The proportional changes were then multiplied by five (5) to convert the measurements to 5 point likert type scale such that 1=strongly disagree, 2=disagree, 3=not sure, 4=agree and 5=strongly agree. Geometric Mean (GM) = $\sqrt[n]{(1+p_1)(1+p_2)\dots(1+p_n)}$ where p_1, p_2, \dots, p_n are the proportional changes between two successive years, aggregated over a given period and n is the total number of proportions. The mean scores for the indicators of university performance were compared by computing independent sample t statistic for equality of means at 95% level of confidence and 42 degrees of freedom to test the significance of the difference between sample means of private and public universities. Results show that private universities performed better (mean score of 3.7 out of 5) compared to public universities (mean score of 3.3 out of 5). Since the average value of the sample t-test (-8.23) is less than 2.5 and significance level (0.472) is greater than 0.05, there is significant difference between the private universities' performance mean score and that of the public universities. The overall mean score of university performance for both public and private universities is 3.5 out of 5 with the lowest score of 3.0 for webometrics ranking. Results further indicate that private universities have lesser variability in all performance indicators compared to those of public universities. This demonstrates that the responses on performance from private universities were more consistent and better than public universities.

Among public universities, responses on net surplus were the most consistent with

smallest variability of 35.3% and largest variability of 42.4% in total number of students. Among private universities, responses on net surplus were also the most consistent with smallest variability of 28.9% and largest variability of 37.1% in total

number of students. When the universities are combined, responses on net surplus remained the most consistent with the smallest variability of 30.6% and largest variability tied at 40% in supervisor to student ratio.

Correlation and Regression Analysis between Linkage Strategies and University Performance

Table 1: Correlations between Linkage Strategies and University Performance

		University Performance
University Performance	Pearson Correlation	1
	Sig. (2-tailed)	
	N	44
Curriculum Orientation	Pearson Correlation	.895**
	Sig. (2-tailed)	.000
	N	44
Industrial Attachment Focus	Pearson Correlation	.868**
	Sig. (2-tailed)	.000
	N	44
Teaching and Learning Focus	Pearson Correlation	.864**
	Sig. (2-tailed)	.000
	N	44
Collaborative Research	Pearson Correlation	.919**
	Sig. (2-tailed)	.000

	N	44
Linkage Strategies	Pearson Correlation	.979**
	Sig. (2-tailed)	.000
	N	44

***. Correlation is significant at the 0.05 level (2-tailed).*

Correlation analysis was done after aggregating the variables as composite indices. When Pearson’s product moment correlation coefficient (r) was computed, it was established that there exists high positive correlation between linkage strategies and university performance since $r = 0.979$, which is greater than 0.7. The correlation is significant at p value $(0.000) < 0.05$ as shown in Table 1 Correlation analysis between the indicators of linkage

strategies and university performance shows that collaborative research has the highest positive correlation with university performance with Pearson’s product moment correlation coefficient $(r) = 0.919$, which is greater than 0.7. This was followed by curriculum orientation, Industrial attachment focus and teaching and learning focus with $r = 0.895, 0.868$ and 0.864 respectively. The correlation is significant at p value $(0.000) < 0.05$.

Table 2: Regression Summary and ANOVA on Linkage Strategies and Performance

	Standardised Coefficients	Std. Error	Sig.	R	R Square	F	Df	Sig.	Collinearity Statistics	Toleranc	VIF
Regression	B			.940 ^a	.883	73.531	4	.000 ^a		e	
Constant	.493	.220	.0312			Residual	39				
Curriculum Orientation	.041	.177	.0531						0.078	10.12	

Industrial Attachment Focus	.12 1	.132	.051 2	0.144	6.92
Teaching and Learning Focus	.12 5	.138	.054 3	0.181	5.51
Collaborative Research	.45 1	.135	.041 1	0.091	10.9

Regression model is significant at the 0.05 level (2-tailed).

Regression analysis was carried out to establish the equations for the models. To fix collinearity the stepwise method of model selection was used in order to include only the most useful variables in the models. Collinearity is indicated by tolerance close to zero (0) and variance inflation factor (VFI) greater than ten (10). Tolerance is the percentage of the variance in a given predictor that cannot be explained by the other predictors. A variance inflation factor greater than 10 is usually considered problematic. When each linkage strategy was regressed with university performance as shown in Table 1.2, collaborative research (R) was found the most significant predictor of university performance (Y_1) with p value (0.0411) < 0.05 followed by industrial attachment focus (I) with p value (0.0512) and then curriculum orientation (C) and teaching and learning focus (T) respectively (p values = 0.0531 and 0.543 respectively). The regression model relating each linkage strategy and university performance can be expressed as $Y_1 = 0.49 + 0.04C + 0.13I + 0.12T + 0.45R$. The model implies that a unit percentage increase in curriculum orientation would cause 0.04% increase in university performance, a unit

percentage increase in industrial attachment focus would cause 0.13% increase in university performance, a unit percentage increase in teaching and learning focus would cause 0.12% increase in university performance and that a unit percentage increase in collaborative research would cause 0.45% increase in university performance. Table 1.2 shows that $F(4, 39) = 73.531$ and p value < 0.001, tolerance values > 0 and most VIF values < 10, thus the regression model is a valid relationship between linkage strategies and university performance. Consequently the research hypotheses were accepted as follows:

Hypothesis 1: There is a significant relationship between curriculum orientation and university performance.

Hypothesis 2: There is a significant relationship between industrial attachment focus and university performance.

Hypothesis 3: There is a significant relationship between teaching and learning focus and university performance.

Hypothesis 4: There is a significant relationship between

collaborative research and university performance.

Table 3: Regression Summary and ANOVA Joint Linkage Strategies and University Performance

Model 1	Unstandardised		Standardised		Sig.	R	ANOVA			Collinearity Statistics		
	Coefficients	Std. Error	Beta	t			df	Sig.	Total	Mean Square	F	Tolerance
Regression						.908 ^a	.824	197.214	1	.000 ^a	1.000	1.000
Constant	.408	.113		1.790	.081			Residual	42			
Linkage Strategies	.894	.030	.908	14.043	.000							

Regression model is significant at the 0.05 level (2-tailed).

Regression model 2 ($Y_2 = \alpha_0 + \beta_{11}X_1 + \epsilon_1$) was meant to establish the relationship between the joint linkage strategies (X_1) and university performance (Y_2) and further test hypothesis 5. When X_1 and Y_2 were regressed as composite indices, the results show that X_1 is the most significant predictor of university performance. The model is given as $Y_2 = 0.408 + 0.908X_1$. The model implies that a unit percentage increase in linkage strategies would cause 0.908% change in performance. The joint linkage strategies (X_1) explains 82.4% of the variation in performance (Y_2) since the coefficient of determinant, $R^2 = 0.824$. This means that only 17.6% variation in university performance is explained by other factors. Table 3 shows that F (1, 42)

= 197.214 and p value (0.000) < 0.05, tolerance > 0 and VIF < 10 indicating no collinearity problem and t value (14.043) is significantly greater than zero, indicating that the value of standardised coefficient, Beta (0.908) is significantly different from zero. Thus the regression model is a valid relationship between joint linkage strategies and university performance. Consequently, the findings confirm Hypothesis 5, that *the joint effect of linkage strategies on University Performance is more significant than there separate effects.*

The level of significance of each linkage strategy in relation to each university

performance indicator was further investigated. In the model, the four linkage strategy variables were estimated against ten performance variables one after another. The results of the model were significant at 5 percent levels. Table 4 shows that net surplus and student population are the most significant indicators of performance when regressed with each of the four linkage strategy (p values < 0.05). They both have positive correlation with each of the linkage strategy. The weakest university performance indicator is webometrics ranking with all p values greater than 0.05 and two coefficients (that of industrial attachment and the one for teach and learning focus) depicting negative relationship (-0.249 and -0.33 respectively).

Table 4 Coefficient Estimates between Linkage Strategies and Performance

Explanatory variables	Curriculum Orientation		Industrial Attachment Focus		Teaching and Learning Focus		Collaborative Research	
	β	P	β	P	β	P	β	P
Net Surplus	.251	.029	.153	.029	.330	.022	.224	.041
Scholarship awards	-.005	.985	.428	.032	.370	.073	.155	.035
Total No. of Students	.510	.019	0.05	.094	.378	.024	.188	.040
Teacher to student ratio	.107	.658	.338	.065	.366	.055	.203	.070
Supervisor to Student ratio	-.039	.891	.142	.050	.289	.192	.563	.012
Webometrics ranking	.152	.741	-.249	.470	-.033	.927	.465	.089
Stakeholder Conferences	-.261	.413	.262	.272	.378	.131	.516	.038
Collaborative activities	.324	.173	.473	.010	.253	.170	.034	.049
Industry visits	.092	.660	.252	.011	.312	.060	.392	.017
Guest Speakers	.104	.659	.237	.081	.431	.023	.331	.070

The most significant predictor of performance is collaborative research with all p values less than 5 percent, apart from its correlation with webometrics ranking (8 %) and teacher to student ratio (7 percent). The second most significant predictor of performance is industrial attachment and the list significant predictor of performance is curriculum orientation with only two p values less than 5 percent (net surplus being 2.9 student population being 1.9 percent).

Conclusion

The findings of this study reaffirms that strategies fused with linkage components enhance organisational performance. Therefore, when organisational strategies do not reflect linkage aspects in reference to the industry it serves, performance becomes weak. The world is changing day by day, becoming smaller and more closely linked in many different ways. Education is becoming more informal through modern technologies of the internet and various social networks while formal education system takes new forms and structures using and applying models from business sector. There is rising concern regarding the capacity of these institutions to produce skilled manpower to meet the industry's current and future development needs. Through teacher to

student and supervisor to student ratios, this study found that universities operating in Kenya were experiencing excess demand for courses suggesting that these institutions were responding to industry signals. At the same time, some universities had excess

capacity to offer certain academic programmes. The universities need to develop a framework for manpower planning in such a way that they offer strategic programmes in line with the country's development needs. Otherwise, without coherent linkage strategies for developing skilled manpower, it remains unclear how Africa will realise Sustainable Development Goals (SDGs).

Implication of the Study

The study findings have theoretical, practical and policy implications for future researchers, university authorities and all stakeholders. Resource-based view (RBV) as the main theory anchoring the study provides a favourable model for analysing the appropriate strategies that can provide effective university education-industry linkages. The regression model linking strategies and university performance demonstrates that higher learning institutions authorities can apply the model in predicting performance of their institutions. RBV provides the frame work within which the linkage strategies can be identified from the internal firm resources. It is clear from the findings that industry linkage components must be fused in the strategies in order to realise superior organisational performance. For practice, the study highlights the most significant components of strategy that impacts on university performance. Curriculum orientation, industrial attachment, teaching and learning focus and collaborative research have been established as significant predictors of university performance. The university authorities must therefore

strategically link these indicators to the industry by involving stakeholders in strategy formulation and implementation process, in order to realise superior performance. Further, the study has established that collaborative research is the most significant predictor of university performance. The universities' decision makers should therefore reinforce collaborative research as a critical component of linkage strategies, in order to realise superior performance. There is a need to build institutions that are truly oriented toward the development agenda and the emerging needs within the industry. This requires greater efforts at producing the kinds of graduates who will not only be adaptable to the rapidly changing needs but also contribute to innovation and development. In most African countries, rapid increases in enrolments have occurred without proper consideration of quality issues such as teacher to student ratio and supervisor to student ratio and the extent to which current patterns will satisfy industry manpower needs. Results of this study indicate a number of universities with quality challenges bordering on the size of classes, availability of up-to-date teaching and learning materials and equipment, the relevance of the curriculum to current conditions, and the integration of higher education with the world of work. Higher education institutions should begin to provide pedagogical training to their teachers as well as to their graduate students seeking to be absorbed into the industry. Students should have opportunities to experience the world of work through such experiences as industrial

attachments, internships and cooperative placements with employers in their field of study. Specific plans should also be developed for the acquisition of state of art technology to cope with emerging challenges and market demands. Institutions need to intensify information exchange and make deliberate efforts to establish sustainable linkages with the industry. Research should keep abreast with teaching and should help to raise the quality of higher education, in particular, and of social life, in general. Attention must be paid to improving both basic and applied research, furthering work on advanced technologies of critical social and economic needs, improving the preparation of researchers, setting up adequate structures for the coordination, dissemination and publication of research results, working to make research activities an integral part of institutions' public service functions, and reducing duplication through inter-institutional cooperation involving both researchers and facilities. It has been suggested that the quality of research produced in African universities is rather poor, not only due to the lack of adequate funds and facilities, but also because teachers are not well prepared to do research (Thiam, 1992). Academic staff must also remain up-to-date in their knowledge of the fields in which they are by being able to obtain access to books, current journals, and other materials. There should also be resources to support academic staff travel for participation in professional conferences and training programmes. Government budgets for public universities and fees paid by students have been inadequate to fund the

actual needs of institutions. Higher education institutions must come up with innovative ways of financial sustenance to avoid overdependence, because of their significance for social and economic development. Results from such evaluations should be used both to monitor the progress of reform and to make modifications necessary for effective implementation of initiatives and curricula. It is important that there be serious consideration of investment in research that will enhance the capacity of universities in the region in order to further national development. Organisational policies should take into consideration, the needs and demands the industry that it serves rather than focus on performance in isolation. Curriculum development and review policies, industrial attachment policies and all other linkage strategies and procedures must provide space for contributions from stakeholders. It is clear from the findings that some universities do not regularly review their curricula after every complete cycle. This has a definite impact on the quality of graduates as reflected in the performance of such universities. Robust policies and implementation strategies that address curriculum development and review focus are necessary to improve the quality of graduates from such curricula. Research policies should be built around finance and management, teaching and curriculum and faculty development to address issues such as excessively rapid growth of enrolments, inadequate facilities and equipment, the need for human resource development (including improving qualifications and pedagogical skills of teachers), improving

the conditions of work in universities, and improving the fit between higher education and the world of work and making institutions more cost-effective. Reform and innovation need to be based on a firm foundation of planning and policy analysis at both institutional and national levels. There are many international research organizations which operate in Kenya. These research institutes are often disconnected from the local research environment and experts. There is therefore, need to review the legal framework, protocol and conventions that set up these institutions to allow for more collaboration with the universities and local researchers. There is need to establish a national policy on university-industry collaborative research and promotion of innovative knowledge transfer mechanisms. This would involve development of policies for creating spin-off companies to utilize university patents and licenses and establishment of IPR management offices in each university and support the establishment of joint university-industry incubation centres. There is further need for university authorities to develop policies that promote collaborative curricula development in universities. The outcome would be curriculum that is relevant to the industry operating in Kenya and other African countries. There is need for clear policies that promote linkages between universities and middle level colleges. Kenya has established several research institutes and middle level colleges whose activities are not synchronized with the universities research and teaching programmes. Often, some research institutes

have very well equipped research laboratories. In some instances, some universities have better equipped research facilities. Sharing of these resources would benefit both and improve national innovation activities. Universities need to review curricula in order to incorporate community service in all degree programmes. The outcome of such policies would produce graduates who are sensitive to community needs and who understand how their degree programmes could support social development. Only a small fraction of the students enrolled in Kenyan universities are participating in community based co-curricular activities. Such policies would increase the level of participation by all students, and especially graduate students with a strong volunteer spirit and readiness to help their communities develop. Results of this study show that curriculum revision is not consistent in most universities. This implies inadequate government effort in coordinating the development of academic programmes offered in these institutions to make them respond to the country's development challenges. Universities need to adopt robust policy framework to monitor industry signals and determine appropriate value weightings on some academic programmes so as meet the industry shortages. This study recommends continuous beneficiary assessments by stakeholders to inform and guide students concerning career choices to enhance student placement. This will minimize the excess capacity existing in some universities as revealed by teacher to student ratios, to offer certain academic programmes.

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