Enhancing University Industry Linkages through Marketing and Entrepreneurship

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Abstract

The link between universities and the industry has been of concern both locally as well as globally for a long time, for the obvious reason that it is perceived to enhance organizational performance. The gap between universities and the industry has been widening in developing countries leading to lost opportunities for joint research, product development and job creation. Marketing and entrepreneurship could play a pivotal role in reversing the weakened linkages by building mutual relationship and strengthening bonds between universities and industry. This study sought to examine the role of marketing and entrepreneurship as important tools for enhancing the university industry linkages. The study sought to determine the aspects of marketing and entrepreneurship that have the highest influence on enhancing the university industry linkages. It considered the nexus of entrepreneurship and marketing exemplified by the attributes of innovativeness, creativity, risk taking; proactive orientation and value creation as crucial for creating, nurturing and developing sustained linkages between universities and industry. The study targeted 150 small and medium sized enterprises in Nairobi City County, out of which 143 responded, giving a response rate of 95 %. Data was collected using structured questionnaire administered to managers of small and medium sized enterprises engaged in manufacturing, retail, banking and hospitals. Survey data collected from small and medium enterprises will be analyzed through descriptive statistics including mean scores and standard deviation. We will test our hypothesis through regression analysis. The study found that marketing practices especially those focused on the product, promotion and distribution were key in enhancing University industry linkage. With regards to entrepreneurial orientation, risk taking, and creativity indicators were found to be more important than innovation in enhancing university-industry linkages.

Key words: Marketing practices, Entrepreneurship, University –industry linkage, Innovation, creativity, risk taking

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Introduction

Historically, academic and industry had a productive relationship, each helping to support the other's mission (Prager & Omenn, 1980). However, the links between university and industry weakened after World War II approaching their lowest point in the early 1970s. The widening gap between university and industry was due to conservative stance each adopt. Universities are reluctant to enter in long-term, detailed agreements with industry for fear of compromising academic freedom. Academicians often disdain the profit orientation and distrust the motives of the industry. In contrast, university research is viewed by industry as ivory tower with no serious thought to applicability and reliance on publication for academic credit.

Academic systems of knowledge continue to be disconnected from business systems with regards to industry relevance and commercial application of knowledge (Mascarenhas et al., 2017). The increasingly widening gap between universities and industry can be reduced through enhanced linkages. Collaboration between universities and industry is important for development of the relevant skills, the creation and dissemination of applied knowledge and the promotion of entrepreneurship. Marketing and entrepreneurship are very closely related and are seen to be major drivers in the growth of an enterprise, as they seek to create customer value through identifying the needs of customers and coming up with relevant and innovative strategies to serve those customers. Marketing is concerned with customer's satisfaction and ensures that what is produced by the industry is of relevance to the consumer and enhances customer satisfaction. On the other hand, entrepreneurship deals with innovative ways of coming up with products that satisfy the consumer, at a profit to the producer. An entrepreneur is therefore more concerned with the profit and sustainability of the business, while a marketer is more concerned with customer satisfaction. Entrepreneurial universities adopt mechanisms to support the transfer of knowledge and innovations from academia to industries (Guenther & Wagner, 2008). Marketing and entrepreneurship are expected to enhance the linkages between university and industry by ensuring that what universities do as sources of knowledge is of relevance to the industry.

Both University and industry are producers as well as users of goods and services and as such enhancing the university industry linkage can greatly enhance development within those institutions. Universities generate knowledge, ideas and processes that are applied by the industry to come up with goods and services that serve the customers. Universities can and should therefore act as engines of knowledge, ideas and processes that are passed over to the industry for use in generating new products that are needed by the market.

If industry realizes that the knowledge, ideas and processes they get from the industry is of relevance, they will seek to strengthen their link. Similarly, universities can feel rewarded if they benefit from the entrepreneurial activity of enterprises, through getting people to come from the industry to do university training or through getting more people who are interested in university education. The industry produces products that are of superior quality and enhance customer satisfaction and this can also contribute to strengthening university industry linkage. This study seeks to determine how marketing and entrepreneurship can be used to enhance the University industry linkages.

The objective of the study is therefore to determine the role played by marketing and entrepreneurship in enhancing the university industry linkage.

Literature Review

Institutional linkages and networks in a social structure are explained by social network theory. Initially developed to explain workplace behaviour, social exchange theory has been extended to predict interactions between individuals and institutions in a social set-up (Cropanzano & Mitchell, 2005). The theory involves series of interdependent interactions that generate obligations. The theory assumes that relationships evolve over time based on trust and leading to mutual commitments accomplished through rules of exchange. Reciprocity is an example of the rules of exchange. In every action, there must be a reaction. In other words, something has to be given by one party and something returned by the receiving entity. Therefore, institutional interdependence involves mutual and complimentary arrangements. Brass (1992) opines that social network theory broadly explains how a group of actors are connected by sets of social relationships. The actors in a social system are diverse and play different roles in the social and economic system. Depending on the level of analysis, the social actors may consist of individual persons, organizations, industries and countries. According to the social network theory, the linkages between people or institutions are based on emotional, economic and political needs such as friendship, authority, and economic gain among others (Jaafar, Abdul-Aziz & Sahari, 2009). According to Schiller and Brimble (2009), institutional linkages are efficiently established by personal ties between individuals across institutions. Continuous communication helps to establish mutual trust and develops personal contacts into strong institutional linkages. Social ties between actors are established through information exchange and trust.

Institutions of higher learning and industry are interdependent and share common economic interests. Whereas the core business of universities entails teaching, research and community outreach, industry relies on universities for applied knowledge, technology and labour to pursue their financial and social goals. Consequently, both industry and universities must build mission enhancing relationships with each other with the aim of developing and sharing valuable resources and capabilities such as information, technology and finance. Strong ties between institutions create mechanisms through which detailed knowledge, modern technology and financial resources are shared for mutual institutional gain. Granovetter (1982) argue that the strength of linkages is influenced by organizational history is reflected through frequency of interactions, reciprocity in exchanges and trust building initiatives.

The linkages between universities and industry encompass a wide range of configurations and activities (Narayanan, 2009). The many different types of university-industry relationships vary depending on the objectives, scope and institutional arrangements. When universities and industry develop common understanding and working relationships, the research and teaching activities are likely to respond to the technology and labour needs of the industry. University-industry linkages make the learning process more relevant to students. In addition, instead of focusing on pure academic research, the linkages of university and industry encourage academia to develop tools and knowledge that has commercial application. Blackman and Segal (1993) argue that the collaboration between industry and university enable the latter to attract funds for teaching and research. University-industry linkages

encourage collaborative research with the possibility of attracting public funding particularly where the government is involved either as a participant or a facilitator. Moreover, linkages provide universities with the opportunity to access modern equipment for research and industrial technology. Improved interactions between universities and industry create opportunities for consultancy. Hence, universities may generate additional income from consultancy fees.

Universities are constantly involved in research with possibilities of generating innovations. However, for the innovation process to be productive, universities must be linked to industry to mainstream the generation of the knowledge with commercial application of the knowledge. Such linkage is dependent on the level and strength of interaction between universities and industry. Strong linkages between universities and industry can enhance basic research-innovation links. Universities can work with industry players to mainstream entrepreneurship training in the various degree programmes well as short courses. Therefore, university-industry linkages play a role in ensuring that the university faculty are sensitized to the training needs of industry and creates the environment where entrepreneurs get relevant training from the universities.

Since the 1990s, the strategic direction of universities has moved beyond the traditional teaching and research towards addressing the needs of industry and becoming a key player in stimulating economic growth and entrepreneurship. Guimon (2013) observes that the priority and scope of university-industry linkages differ between developed and developing countries. Whereas in developing countries, poor quality of education and weak financing of universities limit their capacity to engage industry, developed countries tend to actively engage industry in both training and research. Nonetheless, several barriers to linkages between universities and industry persist, key among them being the inherent mismatch between research orientation of firms and universities. While industry is impatient to get results for strategic action, but slow in publication for purposes of deriving competitive advantage over rivals, academia are keen on quicker publication for academic credit. In addition, most universities focus more on basic research as opposed to applied research whose commercial results are valued by the industry. Therefore, universities to a large extent do not align their research agenda with industry needs and consequently fail to court firms in the industry. Michaela (2000) observes that several developed countries have established strong linkages between universities and industry. However, the approach taken towards building relations between institutions of higher learning and industry vary from one country to another. For instance, in North America, universities have had long standing relations with industry. On the other hand, technical colleges in Germany have very strong links with industry and are training grounds for technical labour force required by industry.

The role of marketing can be seen through the traditional mix variables of the product, promotion, pricing and distribution. Universities can provide relevant information that leads to increased product quality and customer service. Similarly, Universities can guide organizations on designing and executing promotion mix programs that maximize on effectiveness of the programs and cut down on unnecessary expenses. Universities can also be source of information regarding pricing and distribution structures. Marketing has become increasingly important in the higher education industry in recent time due to declining state funding and competition for students. The marketing

of higher education encourages enrollment and assists in fund raising (Pelletier & McNamara, 1985). Although many colleges speak of engaging in marketing, they do not practice it. Effective marketing involves involvement by the whole university both administrative and academic staff.

The study tested the following two hypotheses:

H1: Entrepreneurship plays no role in facilitating the link between University and industry

H2: Marketing practices have no role in facilitating the link between University and industry

Research Methodology

The study adopted a descriptive cross-sectional survey design. A random sample of 150 Small and medium scale enterprises located in Nairobi were used in the survey. The study area was divided into four regions: The Central Business District (CBD), Westlands and Eastlands, Kawagware, South B and C. Six data collection assistants were engaged, and two assistants sent to each region. Descriptive cross-sectional survey enables a researcher to collect plenty of data for describing a phenomena and testing relationships between variables at one point in time. This is very appropriate for this study as the nature of data is about the marketing practices and entrepreneurial orientation applicable to the organizations at the time of collecting the data. A semi structured questionnaire, mainly with Likert type questions was used to collect data. Analysis of the data was done using the SPSS tool, and the analysis involved computing mean scores, correlation coefficients and linear regression analysis. Validity and reliability of the data collection instrument was assessed by first carrying out a pilot study to determine the correctness and relevance of the questions by determining the Cronbach's alpha coefficient.

Study findings

Out of the 150 questionnaires distributed, 143 were returned, giving a response rate of 95.3%. The high response rate may be attributed to the method of data collection which was mainly by personal delivery of questionnaire and collection of the completed questionnaire by the assigned research assistant. The distribution of the firms that participated in the survey, by type of business is shown in Table 1.

Table 1. Type of Business

Business type	Frequency	Percent
Retail, supermarket, bakery, grocery	75	52.4
Law, insurance, advertising	15	10.5
Medical, hospital, chemist	26	18.2
Mpesa, ICT, art and design	18	12.6
Automobiles, hardware	9	6.3
Total	**143**	**100.0**

As shown in the table, majority (52.4%) of the businesses surveyed were in the category of Retail, supermarket and bakery and grocery class, while the lowest category represented was Automobiles and hardware (6.3%).

The researchers sought to know the highest level of education by the respondents. The results are shown in Table 2.

Table 2: Education level

Level of study	Frequency	Percent
Secondary	27	18.9
College	45	31.5
University	71	49.7
Total	143	100.0

As indicated, the study found that only 18.9% were of secondary level education and below, while all the others (81.1%) had College to University level education. This shows that most SME entrepreneurs are highly educated. High literacy levels could be attributed to the free primary education policy introduced by the government that has increased transition rates from lower levels of study to higher levels.

Table 3 presents results for the number of people employed by the enterprises.

Table 3: Number of employees

No of employees	**Frequency**	**Percent**
Less than 10	90	62.9
11 – 49	9	6.3
50 – 99	44	30.8
Total	**143**	**100.0**

As shown in table 3, of the businesses that participated, 90 (62.9%) were micro enterprises (had less than 10 employees), while 44 (30.8%) were Medium enterprises (had 50 to 99 employees). The rest (6.3%) were small enterprises with number of employees ranging between 11 and 49. Thus, majority of the enterprises were micro level businesses.

In terms of age, it was found that 34.3% had been in existence for less than 5 years, while only 28.7% had been in existence for more than 10 years. This indicates that most of the MSMEs are relatively young.

The results were subjected to reliability test, as indicated in Table 4.

Table 4: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.883	.882	34

The Alpha Based on Standardized Items was 0.883 which is indicative of high level of reliability of the data collection instrument. This showed that the data collection instrument was very reliable, given than a coefficient of 0.7 is regarded as the threshold for good reliability of a data collection instrument.

Descriptive statistics were done for indicators of University –industry involvement by the businesses, and the results are shown in Table 5.

Table 5: University Industry involvement

	N	Mean		Std. Deviation
	Statistic	Statistic	Std. Error	Statistic
Do you agree that your firm works closely with Universities	143	2.99	.118	1.412
Do you agree that you allow students to do internship in your organization	143	3.20	.126	1.502
Do you agree that some of the ideas you use in your organization are obtained from researchers at the University	143	2.61	.105	1.256
Do you agree that working with the university can be very useful source of ideas for your firm	143	4.15	.078	.934
Valid N (listwise)	143			

Among the statements about be that 'working with the university can be very useful source of ideas for your firm' had the highest mean score (Mean = 4.14, SD .934) while the statement 'the firm allows students to do internship in its organization' followed (Mean = 3.196, SD .126). The lowest was the statement 'some of the ideas you use in your organization are obtained from researchers at the University' (Mean = 2.61, SD .105). The results of descriptive statistics enabled us to identify the factors with the highest mean score, to be used as the representative of University industry involvement.

Table 6 presents descriptive results for marketing practices

Marketing practices	N	Mean	Std. Deviation
Relevance of quality of our products/programs in enhancing your linkage with universities	143	3.69	1.502
Relevance of public relations (e.g. convincing customers and the publics have positive attitude towards our company and products) in enhancing your linkage with universities	143	3.73	1.321
Relevance of availability of products packing in enhancing your linkage with universities	143	3.67	1.320
Valid N (listwise)	143		

Table 6 shows the descriptive statistics of the marketing practices. The highest factor was 'Do you agree that public relations (e.g. convincing customers and the publics to have positive attitude towards our company and products) is relevant in enhancing your linkage with universities (mean = 3.73, SD 1.32), while the other two factors had a mean score of 3.69 and 3.67 respectively. A number of other indicators tested had scored less than 3.5 and were therefore left out. These were indicators in relation to pricing, and a few others on the area of product and promotion. This indicates that public relations, quality of educational programmes, and programme packaging are very relevant in enhancing University industry linkages.

Table 7: Entrepreneurial orientation

Risk taking ability	N	Mean	Std. Deviation
To what extent have you become more confident in taking decisions assisted in strengthening your link with the university	143	4.09	1.074
To what extent is value creation assisted in strengthening your link with the university	143	4.23	.984
To what extent is seeking to give more value to your customers assisted in strengthening your link with the university	143	4.43	1.032
To what extent are you focused on the being ahead of your competitors in value creation assisted in strengthening your link with the university	143	4.32	1.045
Innovation and creativity	**N**	**Mean**	**Std. Deviation**
To what extent has your organization become innovative in strengthening your link with the university	143	3.20	1.351
To what extent is increased shared experience assisted in strengthening your link with the university	143	3.37	1.203
To what extent is coming up with new ways of serving your customers assisted in strengthening your link with the university	143	3.66	1.145
To what extent is coming up with improved process assisted in strengthening your link with the university	143	3.62	1.233
To what extent is being the first to come up with new ideas in the industry assisted in strengthening your link with the university	143	3.35	1.360

All the indicators of risk taking scored more than 3.5 on a scale ranging between 1 and 5. Hence, we selected factors that had more than 4. The highest was 'To what extent is seeking to give more value to your customers assisted in strengthening your link with the university' (Mean =4.43, SD 1.032). This was followed by the statement 'To what extent are you focused on the being ahead of your competitors in value creation assisted in strengthening your link with the university' (Mean =4.32, SD 1.045). All the indicators for Creativity and innovation scored less than 4, implying that universities are either less innovative or do not have innovations of practical value to the industry. Consequently, innovation and creativity are less important in enhancing university industry linkage than risk taking aspect of entrepreneurship. Between Innovation and creativity, creativity indicators scored higher. For instance, the statement 'To what extent is coming up with new ways of serving your customers assisted in strengthening your link

with the university', an indicator of creativity, had a mean score of 3.66 and standard deviation of 1.145. The highest indicator of Innovation was 'To what extent is increased shared experience assisted in strengthening your link with the university (Mean = 3.37, SD = 1.203). The results mean that the linkage between university and industry is dependent on the industry's desire to understand ways for dealing business risks.

Hypotheses Testing

In testing the hypotheses, regression analysis was done using the factors for marketing practices, entrepreneurial orientation and those of University industry linkages. University industry linkage was taken as the dependent variable, and the factor 'Do you agree that working with the university can be very useful source of ideas for your firm has been used to represent all the factors', since it had the highest mean score.

Hypothesis One sought to test the statement "Entrepreneurship plays no role in facilitating the link between University and industry". This was done by first using the indicators of risk, then those of innovation and creativity. The model summary, ANOVA statistics and regression coefficients are shown in Table 8.

Table 8: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.444a	.197	.162	.85512		
ANOVA Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.470	6	4.078	5.577	.000b
	Residual	99.446	136	.731		
	Total	123.916	142			

a. Dependent Variable: University-industry linkage

b. Predictors: Risk taking

Indicators of risk as an aspect of Entrepreneurship have an R2 value of .197 meaning that these factors explain up to 19.7% of the linkages between university and industry. The F-value of 5.577 is significant at 0.000. The model coefficients are shown in Appendix 1.

The beta coefficients of the regression model suggest both positive as well as negative influence. Negative coefficients are for the extent to which taking calculated risk to minimize losses assisted in strengthening the link between industry and university. The Statements with positive beta coefficients comprised: 'To what extent are you able to bear the risks in better way assisted in strengthening your link with the university', 'To what extent have you become more confident in taking decisions assisted in strengthening your link with the university' and 'To what extent is value creation assisted in strengthening your link with the university'.

The mixed results of both positive and negative beta coefficients show that certain practices of entrepreneurial activity may negatively affect the University-industry linkages, while others are very good at enhancing University industry linkages.

The regression results for the influence of innovation and creativity on the university-industry linkage are presented in Tables 9 and 10.

Table 9: Model Summary

Model		R	R Square	Adjusted R Square	Std. Error of the Estimate	
1		.476a	.227	.204	.83319	
ANOVAa Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	28.116	4	7.029	10.125	.000b
	Residual	95.800	138	.694		
	Total	123.916	142			

a. Dependent Variable: University-industry linkage

The regression model has a R2 value of 0.227 and F value of 10.125 which is significant at 0.000. The results indicate that innovation and creativity explained 22.7% of the variations in linkages between universities and industry. The regression coefficients results are presented in Appendix 2.

Indicators of innovation and creativity show a positive relationship with University industry linkages. The highest indicator 'To what extent is being the first to come up with new ideas in the industry assisted in strengthening your link with the university' (Std. beta = 0.455, p≤ 0.05), followed by 'To what extent is coming up with improved process assisted in strengthening your link with the university (Std. Beta = 0.259, p ≤ 0.05).

Overall, it may be pointed out that entrepreneurship has a positive influence on the linkage between University and industry. As indicated by the positive beta coefficients. We therefore reject the hypothesis.

Hypothesis 2 sought to test the statement 'Marketing practices have no role in facilitating the link between University and industry. Regression analysis between marketing practices and University-industry linkage were done, and the results are as shown in Table 10.

Table 10: Model Summary and ANOVA

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.333a	.111	.091	.89045		
ANOVA Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.703	3	4.568	5.761	.001b
	Residual	110.213	139	.793		
	Total	123.916	142			

a. Dependent Variable: University-industry linkage

b. Predictors: (Constant), marketing practices

The model has R2 value of 0.111 and an F value of 5.761, significant at 0.001. The results imply that marketing practices had significant, but weak influence on university-industry linkages. Marketing practices explained 11.1% of the variation in university-industry linkages. Table 11 shows the beta coefficients of the regression model for the relationship between marketing practices and university-industry linkages.

Table 11: Regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.108	.287		10.816	.000
	To what extent is branding such as name and quality of our product relevant in enhancing your linkage with universities	.176	.063	.249	2.783	.006
	To what extent is public relations (e.g. convincing customers and the publics to have positive attitude towards our company and products) relevant in enhancing your linkage with universities	.073	.059	.104	1.249	.214
	To what extent is availability of products packing relevant in enhancing your linkage with universities	.060	.065	.084	.920	.359

a. Dependent Variable: University-industry linkages

All the indicators of marketing were positive, meaning that marketing practices play a significant positive role in enhancing University-industry linkage. The indicators consisted of: 'To what extent is branding such as name and quality of our product relevant in enhancing your linkage with universities' (Std. beta = 0.249), 'To what extent is public relations (e.g. convincing customers and the publics to have positive attitude towards our company and products) relevant in enhancing your linkage with universities' (Std. beta = 0.104). We therefore reject the hypothesis.

Discussion

The study has established that marketing and entrepreneurship play an important role in enhancing University industry linkages. There are many marketing practices that are important to entrepreneurs, and these will make them want to learn more from universities as long as they perceive these practices as helping them to grow their business. Similarly, there are entrepreneurial oriented indicators that help to enhance university industry linkages. Entrepreneurship appear to be have more influence on university-industry linkages as compared to marketing practices. The results are consistent with the social exchange theory that emphasizes reciprocity in social interactions and relationships. Unlike marketing which largely dwells on improving sales performance of marketing entity, entrepreneurship delivers mutual benefits both the university and the industry. Risk taking had the most significant contribution to building university-industry linkages as compared to innovation and creativity. This means that the industry is interested in partnering with the universities to manage risks. Whereas innovation and creativity have the greatest potential for creating mutually beneficial products to both university and industry, the reality is that few faculty members engage industry in carrying out research that generate results with commercial value.

Our results show that industry attaches little value to research carried out by universities. This is an indication that universities in Kenya are not actively involved in carrying out industry relevant research that lead to innovations. Universities concentrate on one core goal of teaching and spare little time for ground breaking research. In fact, a lot of basic research carried out by universities is largely for academic credit and career progression through publications. While it is true that academic research may have practical value, industry is impatient to the extent that they cannot take time to read through the various academic publications churned out by universities each year. Instead, industry is more keen on practical outputs of research such as technologies, managerial problem solving models and patents. Unless the universities change their research approach to address industry needs, then academic research output is of little relevance to industry. The results of the study suggest that of all the marketing practices, public relations had the greatest influence on improving linkages between universities and industry. The results are consistent with postulations of the social exchange theory which argue that personal ties between individuals in institutions and institutional image have significant influence on the strength of relationships between collaborating entities. Public relations not only build image of the organization, it makes the entity desirable to other parties and entices them to engage on mutual relations based on trust. Our results therefore, suggest that universities must manage their image to endear the industry for collaborative engagement.

Implications

The issue of university industry linkage has continued to attract attention among academicians and practitioners for over three decades, because of the significant role it could play in enhancing organizational performance and converting theory to practice. This study therefore has implications to both theory and practice, in the sense that policy makers need to identify those areas that can be used to enhance university-industry linkages. The results of the study support the social exchange theory and illustrate image, trust and reciprocity are fundamental ingredients in building linkages between universities and industry. The study has brought to the fore the areas that require more focus in encouraging University industry linkage.

Recommendations

The study found that marketing practices play a role in enhancing university industry linkages. It is therefore recommended that marketers identify specific areas which they can work together with universities in order to strength the link between university and industry. Similarly, the study found that innovativeness creativity and risk taking are important in enhancing university industry. Creativity was found to be less prominent in enhancing the link. It is therefore recommended that universities engage in industry relevant research to build stronger linkages with the industry. It is therefore recommended that universities focus on creative and innovative ways that are attractive to entrepreneurs in order to strengthen the link with the industry.

Suggestions for further research

This study focused on the entrepreneurs or the industry part of the University Industry linkage. Future work could focus on the university side of the link, in order to determine their views about strengthening the University Industry linkages.

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Appendix 1: Regression Coefficients for risk taking and U-I linkage

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.690	.359		7.485	.000
	To what extent is calculated risk to minimize losses assisted in strengthening your link with the university	-.084	.129	-.113	-.652	.515
	To what extent are you able to bear the risks in better way assisted in strengthening your link with the university	.157	.097	.203	1.619	.108
	To what extent have you become more confident in taking decisions assisted in strengthening your link with the university	.410	.132	.471	3.114	.002
	To what extent is value creation assisted in strengthening your link with the university	.066	.104	.069	.630	.530
	To what extent is seeking to give more value to your customers assisted in strengthening your link with the university	-.025	.159	-.027	-.156	.876
	To what extentare you focused on the being ahead of your competitors in value creation assisted in strengthening your link with the university	-.151	.139	-.169	-1.084	.280

a. Dependent Variable: University-industry linkage

Appendix 2: Regression Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.281	.276		11.873	.000
	To what extent is coming up with new ways of serving your customers assisted in strengthening your link with the university	-.196	.075	-.241	-2.608	.010
	To what extent is increased shared experience assisted in strengthening your link with the university	-.051	.070	-.066	-.728	.468
	To what extent is coming up with improved process assisted in strengthening your link with the university	.196	.069	.259	2.852	.005
	To what extent is being the first to come up with new ideas in the industry assisted in strengthening your link with the university	.312	.059	.455	5.303	.000

a. Dependent Variable: University-industry linkage