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Effect of Stakeholder Linkages on Organizational Performance of Kenya Agricultural and Livestock Research Organization

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Abstract: *Kenya Agricultural and Livestock Research Organization is tasked with facilitating improved production technology and establishing adequate feedback systems from agricultural producers. However, the agricultural research services and outputs from the institution are not adequately availed and adopted by the target clients for sustainable development through agriculture. This led to the assessment of effect of stakeholder linkages on organizational performance of Kenya Agricultural and Livestock Research Organization. The objectives of the study included; to find out the effect of normative linkages, diffused linkages, enabling linkages and functional linkages on organizational performance of Kenya Agricultural and Livestock Research Organization. It was further guided by theories; stakeholder theory and marketing myopia theory. Descriptive survey design was applied to gather adequate and detailed information for the research study. The target population was the research scientists of institutes of Kenya Agricultural and Livestock Research organizations. Questionnaires were used to collect data that was analysed by descriptive and inferential statistics with aid of Statistical Packages for Social Sciences (SPSS). Study findings were presented in tables. Both descriptive and inferential findings revealed that stakeholder linkages had an effect on organizational performance. Regression analysis showed that the correlation of each independent variable and dependent variable was strong and positive. It implied that there was a relationship between normative, diffused, functional and enabling linkages taken together and organizational performance of KALRO was strong, positive and statistically significant. Therefore, the interactions of KALRO with stakeholders affected their organizational performance. Based on the coefficient of determination findings, variation or changes in organizational performance was well explained by the changes in the changes from the stakeholder linkages. The overall significance of the model showed that it fitted the data and all independent variables affected the dependent variable. The ratio of departure of estimated values of the study parameters from the hypothesized values to the standard errors showed that the stakeholder linkages affected organizational performance since their association was significant. The study findings will benefit Kenya Agricultural and Livestock Research Organization, the government through ministry of agriculture, farmers and other researchers. Findings contain important information that can guide marketing of KALRO products thereby improving their uptake and help in revenue generation to fill the existing gap between budget and revenue which indicates the extent of organization performance.*

Key words: *Normative Linkages, Diffused Linkages, Enabling Linkages, Functional Linkages, Stakeholder Linkages, Organizational Performance, KALRO*

I. INTRODUCTION

Marketing concept is an important ingredient to the relationship between the organizations and the clients (Kotler, 2016). Effective marketing requires an appropriate marketing strategy. Marketing strategy is the comprehensive plan incorporating linkages that are established in order to achieve the marketing goals and objectives of entity (Ottman, 2017). Marketing strategies guides the organization on how to allocate its resources to best available opportunities for sustainable performance. Swaans, Boogaard, Bendapudi, Taye, Hendrickx and Klerkx (2014) opined that effective marketing of products particularly in the government owned agricultural organizations who are more concerned on revenue generation than profit maximization need strong linkages with other organizations and individuals to be successful in their operations.

Stakeholders have significant influence in the business environment where the marketing is conducted (Swaans *et al.*, 2014). They have interest in the way they undertake their operations. Stakeholder linkages are interactions among the organizations that are potential partners in undertaking related businesses (Payne & Frow, 2014). Major stakeholder linkages include; normative, diffused, enabling and functional linkages. Successful marketing activity require well managed linkages among the stakeholders which later leads to desirable organizational performance (Olwande, Smale, Mathenge, Place, & Mithöfer, 2015). Government owned organizations particularly in the agricultural public sector are involved in utilization of resources to produce a particular outcome such as delivery of a product or service. One of the ways for these services to reach the intended recipients is through appropriate marketing undertakings. Therefore, like other corporate organizations, they need effective linkages to reach the clients for their products in order to perform better (Rosenberg-Hansen & Ferlie, 2016).

Lack of enough exchanges between KALRO and other stakeholders such as Kenya Plant Health Inspectorate Services (KEPHIS), Kenya Seed Company Limited (KSCL), Universities, private agricultural organizations and county governments may have influenced inadequate marketing activities leading to low uptake of agricultural inputs and services (Atera, Onyancha, & Majiwa, 2018). Low uptake of the KALRO products by the farmers in Kenya means that they are generating little revenue considering their potential. As such, there has been a consistent gap between the revenue and the budgets. In financial year 2015/2016, there was a discrepancy of Kshs.3.2 billion having revenue of Kshs.4.8 billion against budget Kshs.8 billion. They had a budget of Kshs.10 billion and revenue of Kshs.4.8 billion hence a gap of Kshs.5.2 billion in year 2016/2017. In year 2017/2018, they had a budget of Kshs.10.8 billion and revenue of Kshs.6 billion thus presenting a gap of 4.8 million. KALRO generated revenues of Kshs.328,661,753.15, Kshs.440,634,040.16 and Kshs.543,549,586.91 for years 2016, 2017 and 2018 respectively. The number of farmers served determines the amount of revenue and product awareness leads to interest on the same hence marketing cannot be wished away. However, majority of producers lack information on the appropriate agricultural inputs and when to best use them.

Statement of the Problem

Agricultural research outputs and services are useful and meaningful when availed and used by the agricultural producers to improve their production. Marketing is enhanced by stakeholder linkages and determines the extent of products' uptake by the farmers. However, there has been huge discrepancy between the generation and usage of research services and agricultural products by the farmers hence inadequate income leading to a gap between budgets and revenues. There have been inadequate collaborations among KALRO, producers/farmers and other stakeholders thus their needs are yet to be fully addressed in the Country. In the financial year 2015/2016, the budget was Ksh.8 billion while revenue was Kshs.4.8 billion, 2016/2017 had a revenue of Kshs.4.8 billion against budget of Kshs.10 billion, 2017/2018 had revenue of 6 billion against budget of Kshs.10.8 billion and 2018/2019 had a revenue of Kshs.7 billion against budget of Kshs.11.6 billion. The sales revenue that KALRO have generated on their own is little compared to their budget needs. Studies have been conducted on marketing of agricultural products and commodities but none has focused on stakeholder linkages in regard to marketing and organizational performance. Koome and Wanjohi (2017) carried a study on factors influencing marketing of agricultural produce among small-scale farmers of sorghum in Giaki location, Meru County, Kenya. The study revealed that most farmers used middlemen who are exploitable as market link while marketing their sorghum produce. The correlation between information access and sorghum marketing was strong and positive. Kiplagat (2015) assessed factors influencing marketability of maize produce among smallholder farmers' in soy sub-county Uasin Gishu-Kenya. It was found that marketability of maize was influenced by quality, pricing and market size. All above studies did not address the issue of stakeholder linkages. Therefore, the researcher sought to fill the gaps by undertaking a study on the effect of stakeholder linkages on organizational performance of Kenya Agricultural and Livestock Research Organization.

Objectives of the Study

i. To examine the effect of normative linkages on organizational performance of Kenya Agricultural and Livestock Research Organization.
ii. To determine the effect of diffused linkages on organizational performance of Kenya Agricultural and Livestock Research Organization.
iii. To assess whether functional linkages affect the organization performance of Kenya Agricultural and Livestock Research Organization.
iv. To establish the effect of enabling linkages on organizational performance of Kenya Agricultural and Livestock Research Organization.

Research Hypotheses

H_{01}: The relationship between normative linkages and organization performance of Kenya Agricultural and Livestock Research Organization is not statistically significant.

H_{02}: Diffused linkages have no statistically significant effect on organizational performance of Kenya Agricultural and Livestock Research Organization.

H_{03}: The relationship between functional linkages and organization performance of Kenya Agricultural and Livestock Research Organization is not statistically significant.

H_{04}: The relationship between enabling linkages and organization performance of Kenya Agricultural and Livestock Research Organization is not statistically significant.

II. LITERATURE REVIEW

Theoretical Review

The researcher reviewed theories that are related to the study. They included; stakeholder theory and marketing myopia theory.

Stakeholder Theory

Stakeholder theory was developed by freeman in the year 1984. It describes how any group or individual can affect or be affected by the achievement of organizational goals. Stakeholder theory suggests that organizations have to manage their stakeholders effectively for better organizational performance. This promotes establishment and maintenance of proper linkages that helps in meeting the ever changing clients' needs (Jones, Wicks, & Freeman, 2017). It avails to the state owned agricultural organizations the ways to treat the clients well who later respond by acquiring and sharing valuable information concerning products offered. Stakeholder theory furthermore harnesses the energy of stakeholders towards the fulfillment of the organization's goals. Business environments are subject to change hence organizations ought to get the stakeholder linkages right in order to obtain better and relevant information to base their decisions (Hillebrand, Driessen, & Koll, 2015).

Stakeholder theory indicates that enabling linkages such as government support are needed for enhancement of marketing activities. Normative linkages are also necessary for identification of agricultural producers while diffused linkages assist in promoting the image of the organization in regard to the research services being marketed by KALRO. The functional linkages involve the interactions between the employees and organization. The actual producers are the input stakeholders while the markets and those who execute sales are the output stakeholders. In these relationships, the organization gets the opportunity to reach and interact with customers and avail their products (Hörisch *et al*., 2014). Good organizational performance is anchored in better service to the clients and level of revenue generated against the budget projections of the organization.

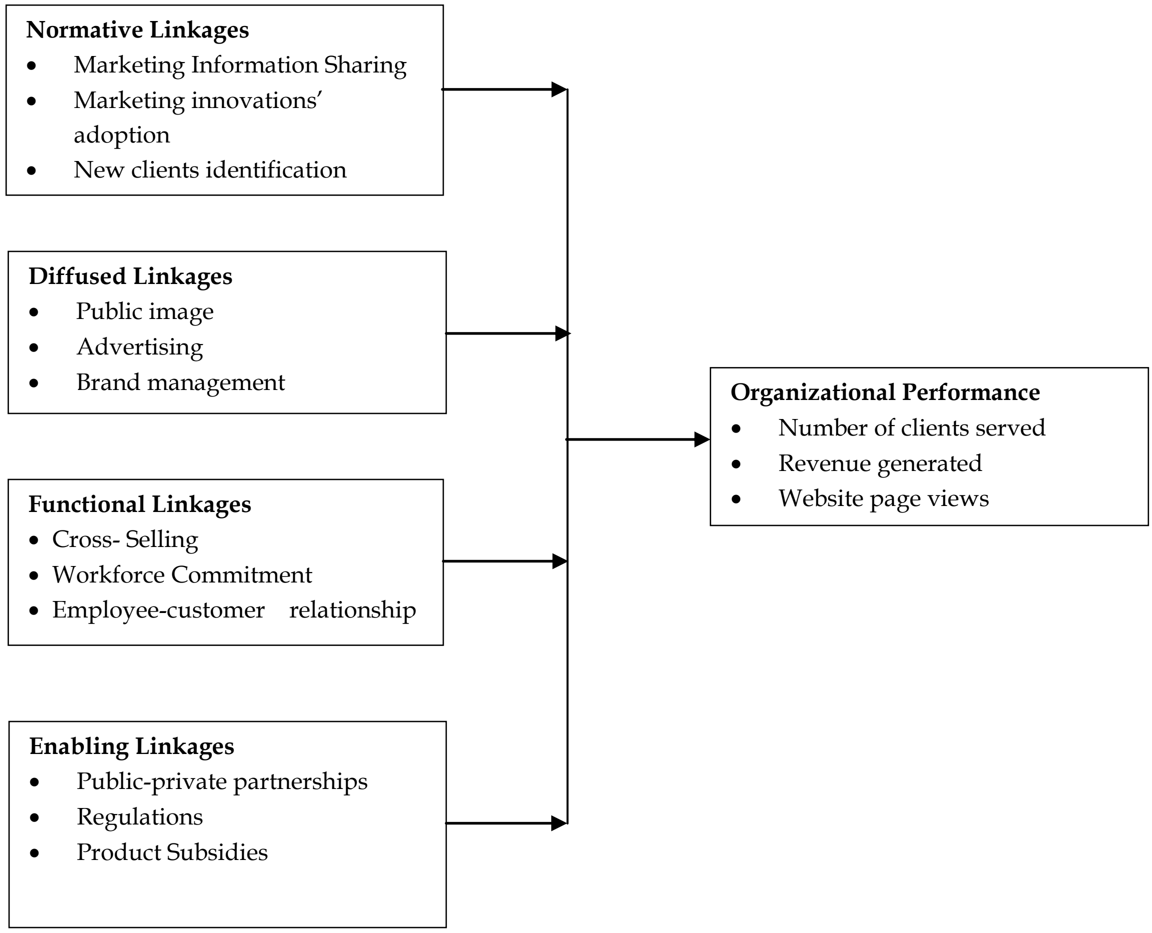
Marketing Myopia Theory

Marketing myopia theory posits that an organization is more of customer satisfying process than products producing process. Therefore, he suggested that a company can do well if it concentrates on meeting rather than selling the products. Moreover, it states that organizations ought to focus their energy on understanding the current marketing conditions, do research and modify their products accordingly (Mizik, 2010). Organizations thus requires to be more client oriented to understand the most important needs of the clients and undertake research study to come up with ways of improving products to retain them and attract others. This is achieved through aligning with changing economic and market conditions.

According to Marketing Myopia Theory, it is imperative for organizations to be innovative and able to adapt to marketing strategies informed by the feedback from clients. Marketing Myopia theory is therefore applied by organizations to understand whether they are in the right markets and if they have got hold of right clients (Kotler, Burton, Deans, Brown, & Armstrong, 2015). Through diffused stakeholder linkages, brand management can be used by organizations to identify themselves to the clients. With improved public image, the potential clients can create interest in the products being offered. The organization's image is very important and only marketing strategies can help any company to build a strong reputation by identifying the best opportunities worth pursuing as well as the threats to be avoided. Normative linkages can enable state owned agricultural corporation such as KALRO to focus on existing market conditions and modify their products according to the existing needs of the clients in order to promote organizational performance.

Conceptual Framework

Conceptual framework outlines the association between independent and dependent variable. Figure 2.1 depicts conceptual framework illustrating the relationship between normative linkages, diffused linkages, functional linkages and enabling linkages and organizational performance.



Independent Variable **Dependent Variable**

Figure 2.1: Conceptual Framework

Review of Study Variables

The section outlines the review of literature related to the study variables that include the normative linkages, diffused linkages, functional linkages and enabling linkages. They have been discussed in connection to the organizational performance.

Normative Linkages

Normative linkages are the associations and groups with which the organization has a common interest with (Rim, Yang, & Lee, 2016). They include competitors, peer institutions and professional societies. Through normative linkages, organizations share similar marketing goals hence are competitors in a particular industry. They can work together for common benefit of reducing costs and identifying new clients. Organizations use normative linkages to interact with peer institutions to enhance corporate growth, innovation adoption and identification of new clients for sole goal of effective organizational performance. Išoraitė (2014) noted that partnering with peer institutions comes with mutual benefit of sharing resources and minimizing operational costs.

Companies that have common interests establish partnerships through normative linkages to explore the new opportunities for growth and development. Effective marketing of their products is always through creation of working relationships via normative linkages with peer institutions (Rim *et al.*, 2016). Lack of marketing information sharing can mean absence of appropriate normative linkages implying that few farmers get the products and services of agricultural state owned corporations. Adoption of normative linkages leads to economies of scale in the marketing process of a company. Cooperating in marketing their products reduce and overcome individual disadvantages. This is achieved through normative linkages by facilitation of easier and cheaper access to required resource inputs and identification of potential clients (Wollni, Lee, & Thies, 2010).

Diffused linkages

Diffused linkages involve stakeholders who have no formal relationship with the organization but may take interest in it (Calder, Malthouse, & Maslowska, 2016). They include media, Non-governmental organizations and play a major role in promoting or damaging the image of the organization. They are reactive to the organization actions hence harder to predict and recognize. However, they do not have a lot of power but urgency hence highly demanding in an organization. When they have legitimate concern, they are dependent and rise in priority. They affect the organization by working through members of the enabling and functional linkages. For instance, activist groups may ask consumers to boycott products or NGOs ask the government to increase regulations to prevent certain activities.

Media has the ability to influence the public image of public organizations thus affecting their organizational performance and core function of service delivery. Marketing of products determines their uptake by the customers. Effecting marketing depends on the way product brand is communicated by the media. According to Aghaei, Vahedi, Kahreh, and Pirooz (2014) brand management is the marketing management practice whereby an organization creates a name, symbol or design that is easily identifiable as belonging to the company (Calder *et al.*, 2016). Brand management is mainly applied when communicating to the environment within which the organization operates. The company reputation is a result of fulfilling the promises made on the service and is communicated with stakeholders and clients for the purposes of serving them effectively.

Diffused linkages enable the customers to know what the company is offering and how the company can respond to the needs of the customer for the purposes of improvement. According to Iraldo *et al* (2014) diffused strategic linkages assists the organization to strategize their brand and build good working relationship with potential and existing clients. Advertising is a major component to brand management and advertising strategies portrays the brand. The diffused linkages create an appealing advertising strategy that plays well into the marketing goals of the organization. Brand awareness makes the clients of organizations' products to be identified by the clients and take them as the solution to their needs. It indicates the uniqueness and value of the products. The state owned agricultural institutions are meant for welfare and not profit but their products must be recognized by the target groups before they sought them.

Functional Linkages

Functional linkages are associations with the employees, suppliers and customers of the organization to ensure that right products are produced and availed (Rapp, Baker, Bachrach, Ogilvie, & Beitelspacher, 2015). They have a claim on the organization and high levels of involvement. They are economically dependent on the organization, and as such, the power resides primarily with the organization. Therefore, the organization has moral and legal responsibility to those stakeholders that also increases their priority. The relationship of employees is also critical to the effectiveness and efficiency of the organization. Rapp *et al* (2015) noted that functional linkages are essential to the functioning of the company and include the input functional linkages who are the producers and marketers of the products and the output functional linkages that are clients who receive and consume the products.

Marketing of products of state owned agricultural corporations especially in developing countries has been inadequate (Yu, Patterson, and De-Ruyter, 2015). Functional linkages enable the organization to ensure that the employees give it all in manufacturing of commodities and marketing products with aim of increasing sales from one time to another. Organizations produce new products that they sell at the time of selling the existing ones through a process termed as cross-selling in marketing. Quality of functional linkages is very important in marketing. Many marketing activities in state owned organizations are approached without regard to the cause and effect of working relationships with employees. Without proper working relationships, these improvements cannot be tracked thus hard to determine their effect. Failure to understand the functional linkages has led to undesirable marketing outcomes in agricultural parastatals (Schmitz & Lilien, 2014).

Functional linkages bring along cross-selling that are an important and valuable strategy for client development (Schmitz, 2013). It promotes organizational performance through increased sales. Functional linkages assist organizations to design their selling techniques on the basis of letting the customers to respond to the suggestion of buying additional products. This response means that the product information may be communicated to other interested clients who will seek or not seek the products (Johnson & Friend, 2015). This enables the organizations to sell more and generate more revenue for the organization. Increased number of clients served and improved levels of revenues by state owned organizations indicate good organizational performance.

Enabling Linkages

Enabling linkages have power and influence relationship that is critical to the operations of an organization (Johnson & Friend, 2015). The enabling linkages identify stakeholders who have some control and authority over the organization such as board of directors and governmental legislators and regulators. These stakeholders enable an organization to have autonomy and necessary resources to operate with ease. Government needs to help their agricultural agencies to link with the farmers who are consumers are users of their products. Agricultural state agencies find it difficult to market their services to farmers who are not well organized according to the line of their production. This limits their service delivery thus inadequate performance (Armstrong, Kotler, Buchwitz, Trifts, & Gaudet, 2015).

Cost of production by farmers is an issue of major concern in regard to quality and quantity demand. In this case, they need support in terms of government subsidies (Armstrong *et al.*, 2015). Relevant institutions are tasked with availing subsidized farm inputs to the farmers but the same does not reach them due to lack of right marketing mechanisms to locate them. Lack of strong enabling linkages means these institutions are yet to engage government enough to facilitate their marketing to identify and avail the services to the farmers. It boosts the commitment towards enhancing the wellness of the farmers in a country. Enabling linkages are important for an organization to maintain long-term success. Therefore, they are dominant because groups such as board of directors and regulatory agencies have power over the organization and their interests are usually legitimate. They may influence the undertaking of key activities such as Marketing.

Organizational Performance

Organizational performance determines the extent to which services are delivered by organizations to the clients (Olwande, Ogara, Bebora & Okuthe, 2013). In the agricultural sector, Kenya Agricultural and Livestock Research Organization and other related organizations are tasked to ensure improved productivity on farmers. They engage in research activities to re-develop seeds that can cope with climatic changes. However, their services can be useful only when the farmers are reached and served (Oino & Mugure, 2013). Inability to access the clients means that few are served thus undesirable organizational performance. Farmers who have applied the research techniques can provide feedback on the same (Oino & Mugure, 2013). However, there is few feedback systems are place for the clients. In such conditions, the organizations sell small number of products and generate little revenue.

The number of views in the organization's web site may indicate the level of performance achieved as a result of marketing. However, with little concern for stakeholder linkages, few farmers are aware of their websites hence low number of hits. Government through the state owned corporations which are government owned organizations are expected to play vital role in agriculture sector development (Olala, Gor, & Mukhebi, 2016). Sales revenue is a key determinant of organizational performance in Kenya Agricultural and Research Organization. Sales revenue depends on the number of customers being served by an organization. The number of customer is improved through marketing. Stakeholder linkages enable organizations to identify the potential customers for their products. Therefore, these linkages lead to increase in number of customers and sales revenue. Increased sales revenue is an indicator of improved organizational performance. The extent at which revenue is generated from the sale of products is influenced by stakeholder linkages.

Empirical Review

This section outlines previous empirical studies related to stakeholder linkages based on normative linkages, diffused linkages, functional linkages, enabling linkages and organizational performance.

Koome and Wanjohi (2017) did a study on factors influencing marketing of agricultural produce among small-scale farmers using a case of sorghum in Giaki location, Meru County, Kenya. The study revealed that most farmers use middlemen who are exploitable as market link while marketing their sorghum produce. There was a strong positive correlation between access to information and sorghum marketing.

Ochieng, Owuor, Bebe, and Ochieng (2011) carried out a study on the effect of management interventions on productive performance of indigenous chicken in Western Kenya. The study revealed that farmers who followed the recommended extension service of full management intervention service achieved results indicate that farmers who had adopted full management intervention package as recommended by extension service had higher productive performance than farmers who did not fully or selectively adopted few components of management intervention package. They found that productivity of indigenous chicken was influenced by farm production assets, expenditure on feeds, labour and access to extension services.

Chepng'etich, Bett, Nyamwaro, and Kizito (2014) did a study on analysis of technical efficiency of sorghum production in lower eastern Kenya. They used a field survey data of randomly selected sample of 143 smallholder farmers in Machakos and Makindu districts in Kenya. The study adopted Data Envelopment Analysis (DEA) approach to estimate technical efficiency scores. They found that Results average technical efficiency was 41% which they considered being low. They also noted that farmers lacked innovative arrangement hence unable to increase their capacity to efficiently use resources at their disposal to increase sorghum production.

Miruka, Okello, Kirigua, and Murithi (2012) assessed the role of the Kenya Agricultural Research Institute (KARI) in the attainment of household food security in Kenya. They discussed the adoption of KARI's Agricultural Product Value Chain approach. This approach was expected to position KARI strategically as a key player within the National Agricultural Research System. Its specific emphasis was on partnerships and markets as key focus areas and the implications of these on food security in Kenya. They noted that food security in Kenya required development of strategic partnerships and markets.

A research study by Kiplagat (2015) on the factors influencing marketability of maize produce among smallholder farmers' in soy sub-county Uasin-Gishu, Kenya revealed that marketability of maize is influenced by quality, pricing and market size. Otieno and Maalu (2016) undertook a research work on the effect of stakeholder's involvement in strategy formulation and implementation on organizational performance, among tea warehousing companies in Mombasa County, Kenya. The findings showed that stakeholder involvement in strategy formulation and implementation was a key determinant of organizational performance.

Matsane and Oyekale (2014) on undertook a study factors affecting marketing of vegetables among Small-Scale Farmers in Mahikeng Local Municipality, North West Province, South Africa. Results showed that prominent constraints of marketing vegetables among the small-scale farmers were; lack of access to credit, lack of access to storage facilities, lack of market information, poorly developed village markets and poor producer prices.

A research study by Kimani (2015) on the influence of marketing strategy on brand loyalty of instant coffee brands using a case of supermarket customers in Nairobi-Kenya indicated that consumers are moved to buy a product when they see advertisement of their preferred brand. Advertising creates awareness of a product and thus improves the customer loyalty.

Research Gaps

Knowledge gaps have been identified from the existing literature. The area of stakeholder linkages and marketing of agricultural products for effective organizational performance was not well covered. The discussions of the findings in most studies are on the farmers/producers hence the government sector role is clearly represented. A study by Ochieng *et al* (2011) was short of elaboration on marketing of services by the agriculture extension service providers. It did not also explain the role of enablers such as government agencies in agricultural sector whose interventions and partnerships would likely alter the costs of feeds. The current study discussed the stakeholder linkages that captured the role of government as enabling linkages. Government role is facilitation and regulation of research products meant for the farmers. They can also facilitate the marketing of products made by agricultural organizations like Kenya Agricultural and Livestock Research Organization. Effective marketing is a requisite for improved sales and organizational performance.

A study by Chepng'etich *et al* (2014) did not discuss innovation adoption by the organizations from stakeholder linkages perspective. The current study adopted normative stakeholder linkages to explain how agricultural organizations owned by government like KALRO can acquire innovative ideas by strengthening interactions with related organizations such as KEPHIS. Adoption of innovation in production and marketing influence the organizational performance. Miruka *et al* (2012) did not link the development of markets to organizational performance. The current study has explained marketing from stakeholder linkages point of view. Diffused linkages affect organization public image hence the marketing activities at large. Enabling linkages are linked to establishment of partnerships that promote exchange of ideas that lead to performance improvement.

Kiplagat (2015) did not discuss the importance of stakeholders in the marketing. The government organizations facilitate research and development to improve the quality of farmers' produce. It Government as enabling linkages has been included as a major stakeholder in the marketing of agricultural products and services in the current study. Marketing of research outputs, products and services influence uptake and use by the clients. For better performance of agricultural sector, connection between farmers and government agricultural agencies is a major requirement.

In the study by Koome (2015) the marketing plan was not clearly shown meaning that no reliable marketing strategy was considered in the research. Marketing without strategic dimension may not function well in the agricultural sector. This study considers stakeholder linkages as marketing strategy for Kenya Agricultural and Livestock Research Organization. The performance of these kinds of organizations is anchored on service delivery which is based on number of customers served and service satisfaction. It cannot be easily achieved without proper marketing of their products and services.

III. RESEARCH METHODOLOGY

Research Design

Research design refers to the blueprint for collection, measurement and analysis of data (Smith, 2015). Descriptive research design was adopted since it is suitable for quantitative studies. It is appropriate for describing problem which has not been well researched before and provides a better-researched model. It focuses on describing and explaining the aspects of your study in a detailed manner. The issue of stakeholder linkages has not been adequately researched on hence this research design fitted it very well. It enhanced detailed description and explanation of the variables under the study thus guiding collection of relevant data.

Target Population

According to Wilson, (2014) population is the aggregate number of people or individuals with similar features or characteristics. The target population is the entire population, or group, that a researcher is interested in researching and analyzing (Ho, Plewa, & Lu, 2016). The target population was all 52 centres in 16 institutes under Kenya Agricultural and Livestock Research Organization. Research scientists were engaged in the study to assess the effect of stakeholder linkages on organizational performance. These individuals are at the centre of partnerships with other related organizations and marketing decisions thus were most suited to provide the required information for the study.

Sample Size and Sampling Technique

Sampling is the process of selecting a sample of the respondents for the study in such a way that the individuals selected represent the population (Ho *et al*., 2016). The sample size is an important feature of any empirical study in which the goal is to make inferences about a population from a sample. Purposive sampling technique was used to select the KALRO institutes and centres that represented all products provided by KALRO. These products include crops, dairy products, beef products, Horticulture and veterinary services. There are 52 centres in 16 KALRO institutes. The study used 7 centres from 4 selected institutes.

Table 3.1: List of Selected KALRO institute and Centers

Institute	Centres	Number of Research Scientists	Sample
1. Food Crops Research Institute	KALRO Njoro	32	15
	KALRO Muguga	20	10
2. Beef Research Institute	KALRO Lanet	15	7
3. Veterinary Research Institute	KALRO Vet Muguga	23	11
4. Dairy Research Institute	KALRO Naivasha	20	10
Total		**110**	**53**

From the 110 research scientists, sample was drawn using Nasiuma's (2000) sample determination formula. Sample size was determined as shown.

$$n = \frac{NC^2}{C^2 + (N-1)\,e^2}$$

Whereby;
n=Sample size
N=Population size
C=Coefficient of variation which is 50%
e= Error margin which is 0.05

$$n = \frac{110 \times 0.5^2}{0.5^2 + (110-1)\,0.05^2}$$

n= 52.63
Number of respondents= 53

Data Collection

Data was collected from both primary and secondary sources. Primary data was obtained from the KALRO research scientists while secondary data was collected from records regarding organizational performance of KALRO.

Data Analysis and Presentation

Data was coded and analysed by descriptive and inferential statistics. Descriptive analysis used measures of central tendency and variation. Moreover, inferential analysis was applied. It incorporated Pearson correlation and multiple regression analysis to establish the relationship between independent variables and the dependent variable. Analysis was executed with an aid of Statistical packages for social sciences (SPSS).
The following regression model was applied in the regression analysis;

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon.$$

Whereby;

Y= Organizational Performance
β_0= Constant
X_1= Normative Linkages
X_2= Diffused Linkages
X_3= Functional Linkages
X_4= Enabling Linkages
ε = Error of Margin

IV. FINDINGS AND DISCUSSIONS

Descriptive Statistics for Normative Linkages

The researcher sought to find out the effect of normative linkages on organization performance of Kenya Agricultural and Livestock Research Organization. Descriptive findings are shown on Table 4.1.

Table 4.1: Descriptive Statistics for Normative Linkages

Statement	n	SA 5	A 4	I 3	D 2	SD 1	Mean	Std. Dev
There is information sharing in our organization.	44	38.6%	52.4%	4.5%	4.5%	-	4.25	.751
There are marketing innovations in our organization.	44	27.2%	61.4%	-	11.4%	-	4.05	.861
KALRO has been keen on identification of new opportunities.	44	52.3%	29.5%	15.9%	2.3%	-	4.32	.894
KALRO has been keen on identification of new clients.	44	29.5%	56.8%	9.1%	4.5%	-	4.11	.754
Our organization ensures economies of scale in its operations.	44	56.8%	31.9%	6.8%	4.5%	-	4.41	.815

Findings indicated that organizational performance of Kenya Agricultural and Livestock Research Organization is affected by the interactions with organizations that are in related activities such as KEPHIS. 38.6% and 52.4% of the research scientists strongly agreed and admitted respectively that there was information sharing in Kenya Agricultural and Livestock Research Organization. Normative stakeholder linkages enhance information sharing in marketing for improved performance of KALRO. The mean responses were 4.25 with standard deviation of 0.751). Majority 61.4% agreed (mean=4.05; std. dev=.861) that there were marketing innovations in KALRO. Innovations were adopted as a result of establishment of normative linkages. It was further strongly agreed (mean=4.32; Std. dev=.940) that KALRO had been keen on identification of new opportunities. These findings indicate that normative linkages affect organizational performance through provision of opportunity for marketing information sharing and innovation for production of quality products and their marketing by KALRO. They imply that KALRO are yet to strengthen their relationships with other related organizations such as Kenya Seed to promote desirable performance devoid of huge gaps between revenue and budgets.

Descriptive statistics for Diffused Linkages

The research sough to establish the effect of organization interactions with other organizations that are not directly related to their operations but influence them in some ways. Therefore, descriptive analysis was carried out between the diffused linkages and organizational performance and results are illustrated on Table 4.2.

Table 4.2: Descriptive statistics for Diffused Linkages

Statement	n	SA 5	A 4	I 3	D 2	SD 1	Mean	Std. Dev
KALRO has put in place measures to ensure a favourable public image.	44	29.5%	54.6%	13.6%	-	2.3%	4.09	.802
KALRO has strong brands in the market.	44	20.4%	61.4%	13.6%	2.3%	2.3%	3.95	.806
Brand reputation is a key consideration in our organization.	44	13.6%	72.7%	11.4%	2.3%	-	3.98	.590
KALRO advertises its products.	44	27.3%	54.5%	15.9%	2.3%	-	4.07	.728
KALRO does promotion for its products.	44	36.4%	38.6%	18.2%	2.3%	4.5%	4.00	1.034

Descriptive findings revealed that diffused linkages affect the organizational performance of agricultural organizations. 29.5% of the respondents strongly agreed while 54.6% agreed (mean= 4.09; std. dev=.802) that KALRO has put in place measures to ensure a favourable public image. Diffused stakeholder linkages promote the public image of the organization and can influence performance. Research scientists also agreed (mean≈4.00; std. dev<1.000) that KALRO has strong brands in the market. The relationships with media, NGOs among other diffused stakeholder linkages affect organizational performance based on the above descriptive findings. The performance of KALRO is therefore derailed by lack of strong diffused linkages and inadequate marketing their products.

Descriptive statistics for Functional linkages

Descriptive analysis was performed to describe the effect of input and output functional stakeholder linkages on organizational performance. Findings are shown on Table 4.3.

Table 4.3: Descriptive statistics for Functional linkages

Statement	n	SA 5	A 4	I 3	D 2	SD 1	Mean	Std. Dev
There is cross-selling among the functional departments in KALRO.	44	47.7%	47.7%	-	4.6%	-	4.39	.722
The workforce in KALRO is highly committed.	44	34.1%	61.3%	2.3%	-	2.3%	4.25	.719
There is strong employee-customer relationship in KALRO.	44	70.4%	27.3%	2.3%	-	-	4.68	.518
Functional departments are committed to quality of products.	44	31.8%	36.4%	18.3%	6.8%	6.8%	3.80	1.173

Descriptive findings indicated that input and output functional stakeholder linkages affect organizational performance. 47.7% of the respondents strongly agreed (mean=4.39; std. dev=.722) that there is cross-selling among the functional departments in KALRO. It means organization's interactions with customers, employees and suppliers who form the functional linkages make cross-selling successful hence promoting organizational performance in terms of increased sales. 70.4% of the research scientists strongly agreed (mean=4.68; std. dev=.518) that there was strong employee-customer relationship. The study findings imply that KALRO may be lacking proper connection between the organization, employees and the farmers. Therefore, the products are not availed to the agricultural producers adequately through proper marketing. These lead inadequate sales hence low revenue against the organization budgets.

Descriptive Statistics for Enabling Linkages

The researcher sought to establish whether enabling linkages affected organizational performance and findings are illustrated on Table 4.4.

Table 4.4: Descriptive statistics for enabling linkages

Statement	n	SA 5	A 4	I 3	D 2	SD 1	Mean	Std. Dev
KALRO has partnered with private organizations.	44	31.8%	56.8%	9.1%	2.3%	-	4.18	.691
KALRO enjoys government subsidies.	44	20.5%	47.7%	18.2%	9.1%	4.5%	3.70	1.087
KALRO has a favourable relationship with other state corporations.	44	31.8%	50%	13.7%	4.5%	-	4.09	.802
The government regulations are favourable to KALRO.	44	47.7%	38.7%	9.1%	4.5%	-	4.30	.823

Descriptive findings showed that enabling linkages influence organizational performance. 56.8% of the research scientists agreed (mean=4.18; std. dev=.691) that KALRO has partnered with private organizations. These partnerships are developed through enabling linkages and enhance efficiency in an organization. However, the respondents had differing opinions (mean=3.70; std. dev=1.087) concerning the government subsidies to KALRO. It was however agreed (mean=4.07; std. dev=.802) that there was a favourable relationship between KALRO and other state corporations.

Correlation Analysis

Correlation analysis was performed to determine the strength and direction of relationship between normative, diffused, functional and enabling linkages and organizational performance.

Correlation between Normative Linkages and Organizational Performance

The research carried out correlation analysis to determine the relationship between normative linkages and organization performance. Findings are indicated on Table 4.6.

Table 4.5: Correlation between Normative Linkages and Organizational Performance

		Organizational Performance
Normative Linkages	Pearson Correlation	.810**
	Sig. (2-tailed)	.000
	N	44

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

Correlation analysis findings shows that the relationship between normative linkages and organizational performance was strong, positive and statistically significant (r=0.810; p<0.01) at 99% confidence level. This implies that interactions with organizations that have related operations assist a company in improving their products' marketing, leading to improve sales and better organizational performance.

Correlation between Diffused Linkages and Organizational Performance
The researcher undertook correlation analysis to determine the relationship between diffused linkages and organizational performance. Findings are shown on Table 4.7

Table 4.6: Correlation between Diffused Linkages and Organizational Performance

		Organizational Performance
Diffused Linkages	Pearson Correlation	.516**
	Sig. (2-tailed)	.000
	N	44

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

Table 4.7 shows that the association between diffused linkages and organizational performance was positive and statistically significant (r=0.516; p<0.01) at 99% confidence level. This meant that interactions with organizations that that have no interest or the ones that do not have related operations such as media, NGOs affect the organizational performance of KALRO.

Correlation between Functional Linkages and Organizational Performance
Correlation analysis was undertaken to establish the relationship between functional linkages and organizational performance. Findings are shown on Table 4.8

Table 4.7: Correlation between Functional Linkages and Organizational Performance

		Organizational Performance
Functional Linkages	Pearson Correlation	.637**
	Sig. (2-tailed)	.000
	N	44

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

Correlation analysis findings revealed that the relationship between functional linkages and organizational performance was positive and statistically significant (r=0.637; p<0.01) at 1% significance level. `This implies that interactions with employees, suppliers and customers (functional linkages) can contribute to productivity enhancement and organizational performance.

Correlation between Enabling Linkages and Organizational Performance
Correlation analysis was carried out correlation to establish the relationship between enabling linkages and organizational performance. Findings are shown on Table 4.9.

Table 4.8: Correlation between Enabling Linkages and Organizational Performance

		Organizational Performance
Enabling Linkages	Pearson Correlation	.768**
	Sig. (2-tailed)	.000
	N	44

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

Findings from correlation analysis indicates that the relationship between enabling linkages and organization performance was strong, positive and statistically significant (r=0.768; p<0.01). Interactions with enablers like government agencies can help the organization to strengthen its operations such as production and marketing of products. Provision of subsidies helps organization to provide products as effective prices. Regulations assist organizations to adhere to quality standards of products that can attract customers and make more sales.

Regression Analysis

Regression analysis was carried out to determine the relationship between stakeholder linkages and organizations. It establishes the relationship by predicting changes in the dependent variable that can be accounted for from changes in the independent variables. The regression analysis was discussed from the model summary, analysis of variance and coefficients.

Table 4.9: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.869[a]	.755	.730	.22496

a. Predictors: (Constant), Normative Linkages, Diffused Linkages, Functional Linkages, Enabling Linkages

Regression model summary shows that the correlation of all independent variables and dependent variable was R=0.869. Therefore, the relationship between normative, diffused, functional and enabling linkages and organizational performance was strong and positive. All these variables highly affected organizational performance. The coefficient of determination was R^2 =0.755. It means that 75.5% variation in organizational performance was accounted for from the changes in stakeholder linkages. The adjusted coefficient of determination was 0.730. It meant that the model improved after inclusion of every variable.

Table 4.10: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	6.074	4	1.519	30.006	.000[b]
1	Residual	1.974	39	.051		
	Total	8.048	43			

a. Dependent Variable: Organizational Performance

b. Predictors: (Constant), Normative Linkages, Diffused Linkages, Functional Linkages, Enabling Linkages

The analysis of variance (ANOVA) shows that the regression model was fit for the study. The overall model was significant. The F-value was 30.006 indicating that organizational performance was predicted from normative, diffused, functional and enabling linkages taken together.

Table 4.11: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.993	.412		2.407	.021
Normative Linkages	.346	.103	.431	3.356	.002
Diffused Linkages	.015	.101	.015	.149	.882
Functional Linkages	.213	.102	.207	2.092	.043
Enabling Linkages	.294	.100	.347	2.946	.005

a. Dependent Variable: Organizational Performance

Regression model is a statistical model used to establish the relationship between two or more variables and estimate one variable based on the others. In regression analysis, variables can be independent, which are used as the predictor or causal input and dependent, which are used as response variables. Independent variable (X) is the variable that can be controlled and variable (Y) is the variable that reflects the changes in the independent variable (X) in the regression model.

The researcher used the following regression model;
$Y= \beta_0 + \beta_1X_1 + \beta_2X_2+ \beta_3X_3 + \beta_4X_4+ \varepsilon$.
Whereby;
Y= Organizational Performance
β_0= Constant
X_1= Normative Linkages
X_2= Diffused Linkages
X_3= Functional Linkages
X_4= Enabling Linkages
ε = Error of Margin
From the study findings, the model can be interpreted as shown below;
$Y= 0.993 + 0.346X_1 + 0.015X_2 + 0.213X_3 + 0.294X_4$

From the model, the constant is 0.993 and means if there were zero changes in the independent variables, organizational performance would be 0.993. The beta coefficient for normative linkages was 0.346 implying that one unit change in normative linkages led to 0.346 unit changes in the organizational performance. The beta coefficient for diffused linkages was 0.015 meaning that one unit change in diffused linkages resulted into 0.015 unit change in organizational performance. Moreover, a unit change in functional linkages caused changes in organization performance by 0.213 units. The beta coefficient for enabling linkages was 0.294 hence one unit change in enabling linkages led to 0.294 unit variation in organizational performance of Kenya Agricultural and Livestock Research Organization.

Hypothesis Testing

Hypothesis testing is a statistical test for an assumption regarding a population parameter. In hypothesis testing, an analyst tests a statistical sample test are done with the goal of accepting or rejecting a null hypothesis. The test indicates whether the hypothesis is true. The null hypothesis is the hypothesis the believed to be true. Hypothesis testing was done to make conclusions on whether stakeholder linkages affected organizational performance of KALRO.

The first null hypothesis was $\mathbf{H_{01}}$**:** The relationship between normative linkages and organization performance of Kenya Agricultural and Livestock Research Organization is not statistically significant. The beta coefficient for normative linkages was 0.346 with standard error of 0.103. The first null hypothesis was rejected since normative linkages ($p=0.021<0.05$) were significant at 0.05% significance level. It implied that normative linkages had a significant effect on organizational performance.

The second hypothesis of the study was $\mathbf{H_{02}}$**:** Diffused linkages have no statistically significant effect on organizational performance of Kenya Agricultural and Livestock Research Organization. The beta coefficient was 0.015 with standard error of 0.101. The researcher failed to reject the second null hypothesis since diffused linkages ($p=0.882>0.05$) were statistically insignificant at 5% significance level. Through regression analysis, there was no enough evidence to show that indeed diffused linkages affected organization performance. Diffused linkages involve stakeholders with no formal relationship with the organization but may take interest in it such as the media and Non-governmental organizations. They may not directly influence organizational performance.

The third null hypothesis was $\mathbf{H_{03}}$**:** The relationship between functional linkages and organization performance of Kenya Agricultural and Livestock Research Organization is not statistically significant. The beta coefficient was 0.213 with standard error of 0.102. These findings led to rejection of third hypothesis since functional linkages ($p=0.043<0.05$) were significant at 95% confidence level. It implied that functional linkages had influenced organizational performance.

The fourth null hypothesis was $\mathbf{H_{04}}$**:** The relationship between enabling linkages and organization performance of Kenya Agricultural and Livestock Research Organization is not statistically significant. The beta coefficient was 0.294 with standard error of 0.100. The findings led to rejection of fourth null hypothesis since enabling linkages ($p=0.005<0.05$) were significant at 5% significance level. It implied that enabling linkages affected organizational performance.

V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary of Findings

The descriptive and inferential findings of the study have been summarized in this section.

Normative Linkages and Organizational Performance

Descriptive findings revealed that normative linkages affect organizational performance. The interactions between the organization and competitors in the related operations influence things like marketing of products as a result of exchanges. Normative stakeholder linkages enhance information sharing in marketing for improved performance of Kenya Agricultural and Livestock Research Organization. They have similar values and needs and their associations are of great importance. The research findings showed that the concept of marketing keeps on changing with changing needs of the customers hence the need for KALRO to be updated from other similar organizations. Marketing innovations are adopted through normative linkages and provides the organization with new ways of doing this for better performance. New ways of undertaking marketing activities and development of new products assists in solving the emerging problems that affect performance of KALRO. Descriptive also indicated that identification of new opportunities is all about acquisition of new clients as a result of adoption to normative linkages improves organizational performance through increased revenues. Correlation analysis results revealed that the relationship between normative linkages and organizational performance was strong, positive and statistically significant at 99% confidence level meaning that interactions with organizations that have related operations assist a company in improving their products' marketing, leading to improve sales and better organizational performance.

Diffused Linkages and Organizational Performance

Descriptive findings indicated had an effect on organizational performance of agricultural organizations like KALRO. Diffused stakeholder linkages promote the public image of the organization and can influence performance. Kenya Agricultural and Livestock Research organization has elements in society that are not clearly identified as a formal members of organization that include community, media and other publics who influence their performance indirectly. Their perception and the information that they pass to the customers concerning the organization products can determine the extent to which they will be sought and purchased. Diffused linkages promote the brand reputation of agricultural organizations such as Kenya Agricultural and Livestock Research Organization. Correlation analysis results revealed that there was an association between diffused linkages and organizational performance was positive and statistically significant. Diffused linkages involve stakeholders with no formal relationship with the organization but may take interest in it such as the media and Non-governmental organizations may not directly affect organizational performance.

Functional Linkages and Organizational Performance

Descriptive findings revealed that functional linkages (input and output functional stakeholder linkages) affected organizational performance. Interactions with customers, employees and suppliers who form the functional linkages make cross-selling successful hence promoting organizational performance in terms of increased sales. According to study findings, relationships and interactions between tasks, departments, and organizations, that promotes flow of information, ideas, and integration in achievement of shared goals. The working relationships between the organization and employees are crucial in promoting marketing for improved sales, revenues and performance. Functional linkages enhance workforce commitment in public agricultural corporations which promote effective marketing of products. Functional linkages promote effective employee-customer relationship which improves their individual performance and organizational performance in regard to marketing. Correlation analysis results indicated that the relationship between functional linkages and organizational performance. Regression analysis results indicated that normative linkages affected organizational performance. Based on regression analysis findings, the third null hypothesis was rejected since functional linkages had influenced organizational performance. Functional linkages in form of employees, customers and suppliers directly affect the operations of an organization and its performance.

Enabling Linkages and Organizational Performance

Descriptive findings revealed that indeed enabling stakeholder linkages had an effect on performance. Correlation analysis findings indicated that the relationship between enabling linkages and organization performance was strong, positive and statistically significant. Enabling linkages also assist organizations to strengthen their operations such as production and marketing of products. Regression analysis findings revealed that enabling linkages were significant at 5% significance level. Based on regression analysis findings, the fourth null hypothesis was rejected since enabling linkages affected organizational performance. Enabling linkages comprise of stakeholders who have authority and control over the organization and influence relationship that is critical to the operations of an organization and affect performance.

Conclusions

Conclusions were made from the summary of study findings in line with objectives of the study. It can be concluded that normative linkages significantly affect organizational performance of Kenya Agricultural and Livestock Research Organization. It has been revealed that the organization interaction with competitors and peer institutions (Normative linkages) enables them to share important marketing information that can help to improve the sales thus increased revenue. Normative stakeholder linkages also assist the organization to adopt market innovation that entails use of new ways of undertaking marketing activities for improved performance. It has also been indicated that organizations identify new clients for their products through interactions with other organizations that are engaging in related activities.

Stakeholder linkages like media, NGOs and the community are sometimes capable of promoting or destroying the organization's public image. Marketing of products partially depend on the public image thus can influence sales performance. The advertising of products is strengthened through establishment of effective diffused stakeholder linkages. Organizations identify themselves through their brand. KALRO brand management was affected by diffused stakeholder linkages and this determined their performance. Diffused stakeholders are not directly associated with the actions of KALRO but can convey information about their products to the potential clients.

The input functional linkages that consist of employees and suppliers are essential to creation of products. Therefore, the interactions among KALRO, its employees and suppliers determined the quality of products and the efficiency under which they are produced. The output functional linkages are composed of consumers and purchasers are mainly the farmers/agricultural producers who use KALRO products and their interactions with the organizations determine products uptake hence performance enhancement.

Enabling stakeholder linkages significantly affects organizational performance of Kenya Agricultural and Livestock Research Organization. Findings revealed that the public private partnerships created through enabling linkages ought to enable KALRO to reduce cost on products and offer them at effective prices to the famers. Regulations on the operations of KALRO enable them to focus on quality products and services to the agricultural producers/farmers. It can also be concluded that enabling linkages can bring on board the product subsidies from the government to enable the organization to market and avail products to the farmers. Organization's board of directors who are part of enabling linkages determine allocation of resources to various activities. It can be concluded that marketing of products requires adequate allocation of resources to be effective and successful. Therefore, enabling linkages are a key determinant of organizational performance based on the study findings.

Recommendations

Based on the conclusions on the study findings, the researcher made the following recommendations:

- Kenya Agricultural and Livestock Research Organization should form more strategic alliances with other related organizations such as KEPHIS and Kenya Seed Limited in order to get opportunities to acquire important marketing information and further innovation ideas.
- Kenya Agricultural and Livestock Research Organization should also consider strengthening their corporate social responsibility to promote public image.
- KALRO is recommended to formulate and implement strategies for guiding working relationships between the organization, employees, customers and suppliers.
- The Organization should also create effective public-private partnerships with farmers and seek government support in regard to production and marketing of the products.

Limitations of the Study

The researcher experienced difficulties while undertaking the research. There were limitations which included ways of engaging some research scientists. Furthermore, the researcher faced difficulties in convincing the research scientists who were reluctant in filling the questionnaires. Some respondents also cited lack of time as the reason to hesitate to provide information. The researcher overcame the limitations by assuring the respondents that the information was meant for academic purposes and it would be confidential. They were also informed that the research study was about marketing and will be of importance to KALRO. KALRO has recently established marketing department thus they found it interesting and provided the information.

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