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Keywords: product development, kenya tea development authority, tea board of kenya, tea research foundation of kenya, confirmatory factor analysis.

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ROLE OF PRODUCT DEVELOPMENT STRATEGY ON PERFORMANCE OF TEA FACTORIES IN KENYA

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Role of Product Development Strategy on Performance of Tea Factories in Kenya

Omosa Motongwa Henry^α, Dr. James Muya, PhD^σ, Dr. Stella Omari, PhD^ρ & Dr. Charles Momanyi, PhD^ω

Abstract- Tea factories especially those managed by Kenya Tea Development Agency are faced with challenges of implementing business growth strategies. This has resulted to poor performance leading to public outcry. The study sought to establish the effect of market development strategy and performance of selected tea factories in Kenya. This study was anchored on the Ansoff Matrix theory and Agency theories. A descriptive research design was adopted and used in this study. KTDA has seven regions comprising of 69 factories with 1506 management staff. This study purposively selected Kisii and Kericho Highlands regions. The population of this study was 701 with a sample size of 364 obtained using Yamane's (1967) formula. Simple random sampling was used to get specific respondents. A self-constructed questionnaire was used to collect data from respondents. A pilot study was conducted at Kagwe and Theta Tea Factories in Aberdare Ranges region to test reliability of the data collection instruments. Cronbach's Alpha coefficient was used to test reliability which had an overall coefficient of 0.903. The study tested face validity through peer reviews and content validity by opinions of research expert and supervisors. Data analysis was done using descriptive statistics, which included mean, standard deviation, percentages and frequencies. Inferential statistics, that is Pearson correlation was used to determine strengths of relationship while simple linear regression was used to estimate relationship between variables. The analyzed data was presented using tables, charts and graphs. Study findings indicated that product development strategy has a positive effect on firm performance. The study concluded that tea factories employ business growth strategies to enhance firm performance. The study also concluded that tea factories employ product development strategy to increase their competitive advantage over other firms and create products that appeal to customers.

Keywords: product development, kenya tea development authority, tea board of kenya, tea research foundation of kenya, confirmatory factor analysis.

I. INTRODUCTION

Thompson and Strickland (2018) noted that organizational structure influences the choice of a strategy. Growth of organizations is determined by three major factors –resources of the industrialist, the nature of an organization and the strategic directions taken by the manager. Storey (2014) indicated that the growth of an organization is strong-minded by the environment of the firm resources of the entrepreneur and the strategic decision taken by the owner. The entrepreneur therefore needs to employ both strategic

and tactical skills to improve firm performance (Kuratko et al, 2011). Carland et al, 2014) indicated that entrepreneurs need to plan how to handle uncertainties that are expected to distress the performance of their business ventures. It is therefore important for small organizations to establish the fundamental set of relationships with the environment (Murray, 2011).

The influence of product innovation in enabling firms retain and grow competitive position is incontestable in product innovation strategy. Products have to be restructured and absolutely rehabilitated for retaining sturdy market incidence. The practice of pricing strategy can accomplish mutually short-run and long-run goals (Fraccastoro, Burton & Biswas, 2014). Short-run ends include: reducing inventory, mounting store traffic and sales, creating product awareness and interest and enhancing perception of savings and value. Marketers develop strategies to ensure that their products are not only available in required quantities but also at the right place and time. Distribution decisions involve, inventory control, warehousing, order processing, transportation modes and selecting of marketing channel. Promotion strategy includes the various ways an organization employs to inform and to persuade target customers to buy their products (Foss, 2014).

a) Statement of the Problem

Successful implementation of business growth strategies in a firm leads to peak performance (Kagwiria, 2014, Hrebiniak & Joyce 2016). Business growth strategies have a positive and significant effect on organizational performance of a firm (Ojwaka & Deya, 2018). Product development strategies provide a plan of action for improving a firm's sales, profits, output and efficiency (Matthews and Scot, 2015). Product development strategies provide a vision of where a business seeks to go and how it expects to get there. It is the form by which a business communicates its goals and works towards attaining them (Pearlson and Saunders, 2016).

Tea sector is a key player in the agricultural development in Kenya. However, Kenya Tea Development Authority managed factories have been performing poorly in bonus payment for the last five years (KTDA, 2020). Studies by (Rose & Hudgins, 2018, Ng'ang'a, Namusonge and Sakawa 2016, Kariuki 2016 and Njuguna, Kwasira &Orwa, 2018) have shown that

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tea manufacturing factories in the region have been hit by a downward trend in bonus payment. The factories have experienced dwindling bonuses (Wainaina, Mbeche, Njihia & Otulia 2017, Ombaka, Machuki & Mahasi 2015 and Ojwaka & Deya, 2018).

Previous empirical studies demonstrate the positive relationship between business growth strategies and firm performance (Kagwiria, 2014, Hrebiniak & Joyce 2016, Ojwaka & Deya, 2018, Matthews & Scot 2015 and Pearlson & Saunders, 2016). Furthermore, most of the recent research took place in European, American, Asia and China contexts and consequently there is little understanding as to how business growth strategies affects performance in KTDA managed factories in Kenya. The existing studies related to the study include (Maina, Mugambi & Waiganjo, 2018; Muriuki, 2016 & Gesimba, 2015) who agree that Product development strategy has a positive relationship on organizational performance. None of these studies in my knowledge has considered product diversification strategy and performance. Groosma (2015) pointed out that business growth strategies are always dynamic from one organization to another and do not operate in isolation. Muriuki (2016) assessed various types of business growth strategies but did not focus on the Ansoff Matrix. The study therefore sought to establish the relationship between Product development strategy and performance of selected tea factories in Kenya.

II. LITERATURE REVIEW

a) *Ansoff Matrix/ Model*

Ansoff (1957) is the proponent of the Ansoff Matrix, a model that states that for an organization to grow its presentation, it is essential to realize products and market growth through four different strategies which be contingent on whether or not a company or product is previously or current in the market. He measured two scopes; one measurement is based on the product being either new or current while the other measurement considers market as new or existing. Market penetration which involves selling more of existing products in already exiting market possess the lowest risk (Schroder, 2015), this strategy is aimed at achieving market dominance through gaining competitor's customers, attracting non-users and having the current users buy more (Gardetti, 2015).

On product development, strategy organizations try to vary products for similar current markets, for instance, a company may try to alter package sizes or new recipes of similar products of the present market. Development of goods is seen as one of the types of strategy growth, because the aim of businesses is to present fresh products in markets existing now. A strategy like this might need developing of different competencies and requires development of modified products, which could be presented to

markets existing at any one time (Jain, 2017). Adopting a strategy like this might require attention on the following: market inquiry, developing and innovating in product design and their manufacture techniques and detailed attention on clients' desires and needs, and to follow changing in the same, through continuous market research that is consistent with customer preferences.

b) *Agency Theory*

It was proposed by Jensen and Mackling in 1976. It states that departure between the owner and manager(s) of a firm/company will always be shadowed by the rise of costs because of lack of interest's arrangement between the owner(s) and the manager(s). The costs are referred to as agency costs and these might include costs to observe managers' activities, spending to create a firm's structure to reduce undesirable manager actions and the cost coming from the condition in which managers cannot make decisions without shareholders' approval. One vital suggestion of the agency problem is related to a company's investment policy (Jeen, 2016). Investors prefer high risk-high returns profiles, while managers prefer low risk-low return profiles. This happens because they have a personal fear of losing their jobs. Expanding can provide inspirations for managers through ownership and investment. Hence, the emphasis is not based on performance evaluation of financial outcomes, but more emphasis on optimizing behavior (Jensen & Meckling, 1976; Jensen, 1986).

The Agency theory is viewed as one of the oldest theories in economics and management literature (Daily, Dalton & Rajagopalan, 2013; Wasserman, 2016). It discusses difficulties that come up in firms due to separation of managers and owners and emphasizes the reduction of this difficulty. It contributes to applying the various governance mechanisms to control agents' actions in companies held jointly.

Critics of this theory questioned the impartial of economic relationship between the principal and agent. This theory adopts a contractual agreement between the principal(s) and agent(s) for a limited/unlimited future period, in which the future is unknown. It further assumes that contracting might eliminate the problem of agency, but in practical terms, it faces a number of hindrances like transaction cost, fraud, rationality, and information asymmetry (Jean, 2015). Shareholders' interest in the industry/firm is only meant to maximize returns, but their role is a small one in the firm. Roles of directors are limited only to monitor managers and their further roles are not defined clearly. This theory considers managers as opportunistic hence ignoring their competencies.

This study is based on the proposition that the tea owners [principals] have in good faith given management of their tea factories to KTDA [agents] to process and market the tea products. KTDA has various

employees who have various skills that if well-harnessed results in optimal performance of the tea sector ultimately benefiting the tea farmer [the principal]. This theory relates to both organizational resources variable and performance of the factory variable of this study.

c) *Empirical Literature Review*

Geroski (2015) carried a study on the effects of product development of various company performance procedures such as stock market rates of return, corporate growth, and secretarial effectiveness. In the study, descriptive research design was adopted and used. The research was anchored on RBV theory. An assessment of 21 service industry firms in India was included in the study. The study noted direct significances of developments on company/firm presentation are relatively small and the benefits from expansions are most likely indirect.

Kilika and Koks (2016) conducted a study to suggest a theoretical model related to product development strategies; firm performance, and market adoption in Kenya. It relied on Igor Ansoff's Matrix Model, Resource-based view of the firm, and Diffusion of Innovation Theory were used. The study identified weaknesses in existing literature and provided an integrated approach to market adoption characteristics and its influence on product development strategies. The study identified the need for investigations, as this relationship is not direct, evaluating the moderating consequence of market adoption features, which might not only improve conceptual but also improve appreciating of the connection in a more relevant style. The research indicates that subsequent research needs to adopt such an integrated approach to conduct research in less researched environments to establish the link between development of product approaches and adoption of market features and ultimately its effect on corporation performance. This, in itself, is thought to create a future empirical study agenda item, which aims at responding to some key questions, for instance, the effect of market adoption characteristics on development of product strategies and the relationship between product development strategies and a corporation's performance.

Maina, Mugambi, and Waiganjo (2018) studied the influence of strategic product development practices on competitiveness of Kenyan tea in the world market. The research adopted a cross-sectional survey design in which the population targeted comprised of all 189 members of the East African Tea Association, who participated in the tea auction at Mombasa. Stratified sampling technique was used to select the study sample; purposive sampling technique was used to select managers who represented the small-scale and large-scale producers. Structured and unstructured questionnaires were used to collect primary data from the respondents. Collected data were analyzed using

SPSS version 24. The research findings indicated a weak positive relationship between competitiveness and strategic product development practices. It was concluded that the competitiveness of Kenyan tea in the world market was influenced by other extraneous factors other than strategic product development practices.

d) *Research Design*

This study used a descriptive research design. Sekaran (2013) asserts that research design is used equally for the overall process and also, more precisely, for the research design structure. The latter is to do with how data collection is structured. Kothari (2014), descriptive research studies are designed to obtain relevant and precise information concerning the current status of a problem or phenomenon and whenever possible to draw effective conclusions from the facts exposed. The descriptive research design was used because data and information can be obtained using the technique without shifting the environment (Deyrup, 2013). Scholars who have used descriptive research design before are Kimei (2017); Geroski (2015) Cherotich (2018) and Ojwaka and Deya (2018)

e) *Study Area*

The study was conducted in two main regions under the KTDA managed factories that is Kisii Highlands, and Kericho Highlands. These include region 5 and 6. All the 28 KTDA managed tea-processing factories were included in the study. Kericho highlands is to the west of Mau forest and it borders the Kisii Highlands. Decimal latitude and longitude coordinates for Kericho highlands are -0.36774 and 35.28314 respectively. The two regions were chosen because they were found to be applying various business growth strategies and geographically, the tea factories were closely and highly concentrated. Therefore, sufficient requisite data as per the variables of this study could be obtained from the respondents since they were considered to have relevant practical knowledge.

f) *Target Population*

Population is a cluster of items, persons or items from which a sample was taken for measurement (Sekaran, 2013). Oso & Onen, (2015) argues that population consists the objects of a study comprising of individuals, organizations, events and products. KTDA has seven regions in Kenya with 69 factories. The total number of management staff in Kenya (top managers (Unit Manager, Production Manager, Factory Accountant, Field/Research Manager and Field Service Administrator), section heads (Production Assistant, Assistant Factory Accountant and Assistant Field Service Administrator) and supervisors (Factory Supervisor I, Senior Factory Mechanic, Clerk II Green leaf, Tea Extension Service Assistant, Boil Attendant, Plant Technicians, Stores Clerk I)) is 1506 (KTDA, 2018). Kisii and Kericho highlands regions were purposively

selected. The study population for this study comprised of 701 managers of Kisii and Kericho highlands regions' KTDA managed tea processing firms in Kenya. There were 140 top level managers, 179 section heads and 382 Supervisors=701 (KTDA, 2018). The unit of analysis for this study was therefore the 701 management staff of the 28 KTDA managed factories in the two regions as tabulated below.

g) *Sampling Procedure and Sample Size*

The study categorized the study population into strata, which included the 28 tea processing firms and further into cadres of management. The sample size is symbolic of the large population (Bryman, 2012). The sample size was developed using Yamane's (1967) formula, which provides a simplified formula to calculate sample sizes for proportions or finite populations as indicated below.

$$n = \frac{N}{1 + Ne^2}$$

Where;

N is the size of the population is the size of the sample and *e* is the level of precision or the level of statistical significance set. The degree of precision desired, generally set at 0.05 levels. At 95% confidence level, therefore level of precision = 5% (0.05) Hence given the population as

$$n = \frac{701}{1 + 701(0.05)^2}$$

$$\frac{701}{1 + 701(0.0025)}$$

n = 255respondents

The study had a 30% provision for non-response. Cheung (2017), Berg (2018) and Yangon (2015) in their studies proposed that to cover for non-response bias there is need to create a provision of between 10-30% of the sampled population. Therefore, the total sample size will be 255 +109 = 364 respondents.

The sample size was then proportionately apportioned to each factory and employee strata based on the percentage of the sample to the target population. The study strata included top level managers, section heads and supervisors. Proportions apportioning was done using stratification method. Parson (2014) opined that stratification is used to increase efficiency of a sample design with respect to survey costs and estimator precision.

h) *Data Collection*

The researcher used primary data which was collected using self-administered questionnaires from 28 Kericho and Kisii Highlands regions KTDA managed factories. The researcher used simple random sampling to obtain data from the respondents.

i) *Instrumentation*

The study used primary data. Primary data involves collection of information for the first time and it will be done with self-structured questionnaires. A questionnaire is a pre-constructed set of questions to which the respondents respond to (Mugenda & Mugenda, 2013). Use of questionnaire is one of the most common data collection tools employed in research (Kothari, 2014). Questionnaires are used extensively to gather data on current issues, practices, attitudes, opinions and conditions speedily and in a precise way (Orodho, 2018). Questionnaires give a comparatively cheap way of getting information. Structured questions were used to capture the opinion of the respondents. Open-ended questions will be used to gather information about the subject from the respondents. The questionnaires were administered through drop and pick technique.

j) *Data Analysis and Presentation*

Once the questionnaires were collected by the researcher, they were coded and keyed into SPSS V.24computer software and analyzed. The data analysis tools included descriptive statistics that is means and standard deviation. Regression analysis was done using simple regressions.

The simple regressions was as follows;

Product Diversification Strategy and Organizational Performance

$$Y = \beta_0 + \beta_1 X_1 + \epsilon \dots\dots\dots i$$

Where

- Y- Performance of Tea Processing Firms in Kenya
- B₀ - intercept coefficient
- ε_i - error term (extraneous variables)
- X₁ – product development strategy
- β₁ - regression coefficients

III. DATA ANALYSIS, PRESENTATION AND DISCUSSIONS

The researcher distributed three hundred and sixty-four (364) questionnaires to the factory management personnel. A total number of three hundred and nineteen (319) questionnaires were filled and returned which represents 87.64 % response rate. This was considered sufficient for the study according to (Saunders *et al.*, 2011). Forty-five (45) questionnaires were not returned while three (3) of the returned questionnaires were unusable because they were not fully filled. Therefore, 316 questionnaires from the respondents were sufficiently completed. Thus, the response rate of this study was 86.8 %. A study by Holbrook (2009) which sought to establish the acceptable response rate in social sciences surveys revealed that a rate above 50% is representative and is within the desirable response rate.

a) *Product Development Strategy*

The study sought to assess the product development strategies employed by the tea factories. The study results were presented in table 4.1.

Table 1.1: Descriptive Statistics Results on Product Development Strategy

Statements	Min	Max	Mean	Std. Dev
There is a defined policy governing product development process	1	5	3.76	1.146
Processes in product development are adopted from industry practises	1	5	3.89	0.929
There is a minimum of five processes that a new product has to go through before it is developed	1	5	3.56	1.129
Management defines the processes a new product will go through before development	1	5	3.72	1.058
The firm level of innovativeness in new product development has been recognised in the past	1	5	3.59	1.052
The firm new products are received well in the market due to high level of innovation	1	5	3.65	0.996
Intra-preneurship in the organisation has led to the development of new products	1	5	3.43	1.098
The firm promotes creativity among various developments by investing in their ideas	1	5	3.75	1.051
The firm has a research and development department	1	5	3.49	1.153
The research and development department has been sufficiently funded	1	5	3.22	1.144
Many new products have been developed through R&D	1	5	3.44	1.138
The r & d department activities have been recognised by industry players	1	5	3.55	1.087
Average Mean			3.588	1.082

Source: Field Data, (2020)

The study findings indicated that majority of the respondents were of the opinion that there is a defined policy governing product development process (mean=3.76, SD=1.146). Further, the respondents agreed that processes in product development are adopted from industry practices (mean=3.89, SD=0.929). Most respondents were of the opinion that there is a minimum of five processes that a new product has to go through before it is developed (mean=3.56, SD=1.129). Majority of respondents also were of the opinion that management defines the processes a new product will go through before development (Mean=3.72, SD=1.058). In addition, most respondents agreed that the firm's level of innovativeness in new product development has been recognized in the past (mean=3.59, SD=1.052). Most respondents were of the opinion that the firm new products are received well in the market due to high level of innovation (mean=3.65, SD =0.996). In the same breath, respondents expressed mixed reactions to the statement that intra-preneurship in the organization has led to the development of new products (mean =3.43, SD=1.098).

Most of the respondents were of the opinion that the firm promotes creativity among various

developments by investing in their ideas, (mean =3.75, SD= 1.051). Many respondents agreed that the firm has a research and development department (mean=3.49, SD=1.153). Majority of the respondents disagreed that the research and development department has been sufficiently funded (mean=3.22, SD=1.44). The study further revealed that most respondents were of the opinion that the R&D department activities have been recognized by industry players (mean =3.55, SD=1.087).

With an average standard deviation of 1.082, it shows that all the items were of close range and were not widely dispersed apart thus an indication that they had high level of internal consistency and therefore would measure the same concept of product development. The overall results of findings on product development strategy indicated an aggregate mean of 3.588 and standard deviation of 1.082. This connotes the importance that management of the KTDA managed factories attach to product development as a business growth strategy.

The study findings that various processes are needed for product development which can be adopted from industry practices are interpreted to mean that there is a need for technology adoption in order to

enhance product development. These study findings are supported by Feng, Li, Wang, Zhang, Wan & Yang, (2019) who notes that in order to target new markets in the Far East, the Kenya Tea Development Agency Ltd (KTDA), a private company providing management services to small-scale tea farmers for the production, processing, and marketing of teas in Kenya, has introduced processing of orthodox teas. Orthodox teas are “whole leaf teas manufactured using the traditional process”, and generally fetch higher prices than those manufactured by the “crush, tear and curl” (CTC) process. KTDA’s target level of production for orthodox teas is 60 million tonnes per annum, with at least one factory in each production zone manufacturing the product.

Further, Van Lelyveld & De Rooster, (2016) found that the range of tea products is increasing with there being a lot of process and product development. With there being an increase in the industry, the manufacturers who do not conform to the market demands cannot survive. They can borrow best manufacturing practices from other industries to succeed in their operational performance depending on the market requirements.

b) *Descriptive Statistics Results on Firm Performance*

The study sought to assess performance of tea factories managed by Kenya Tea Development Authority. The study results were presented in table 4.2.

Table 1.2: Descriptive Statistics Results on Firms Performance. (N=316)

	Minimum	Maximum	Mean	Std. Deviation
The company is a cost leader in the market	1	5	4.27	.851
The company pricing of its products is the best for its suppliers	2	5	4.14	.835
The firms market share is among the highest in the industry	2	5	4.07	.857
The firm market share has improved with business growth diversification	2	5	4.02	.822
Bonus payments by the firm are among the highest	1	5	3.64	1.090
The factory farmers are paid in time and at a high rate	1	5	3.60	1.078
Surveys have indicated that customers are satisfied with the firm's products	1	5	4.13	.824
There are high levels of referrals by customers	1	5	4.09	.910
level of customer retention is high	1	5	4.31	.734
Average Mean			4.03	.889

Source: Field Data, (2020)

The study findings indicated that tea factories were cost leaders in the market (mean= 4.27; SD=.851). Majority were of the opinion that the company pricing of its products is the best for its suppliers (mean=4.14; SD=0.835). That firm market share has improved as a result of business growth strategies and stands as the best in the industry (mean=4.07; SD=0.857). Most respondents agreed that firm market share has improved with business growth diversification (mean=4.02; SD=0.822). However, respondents had divergent opinion regarding the statement that bonus payments by the factories are among the highest (mean=3.64; SD=1.090). Respondents also varied in opinion regarding the statement that factory farmers are paid in time and at a high rate (mean=3.60; SD=1.078). Others were of the opinion that surveys have indicated that customers are

satisfied with the factory's products (mean= 4.13; SD=0.824). Majority of respondents were of the opinion that there are high levels of referrals by the company (mean=4.09; SD=.910). The study findings indicated that respondents were of the opinion that level of customer retention is high (mean=4.31; SD=0.734). Overall, the study items on firm performance objective posted an aggregate mean of 4.03 and a standard deviation of .889 this implies that business growth strategies have an influence in firm performance.

The study findings are supported by Namu *et al*, (2014) who argued that the production of tea in Africa is on a minimal scale and with small-scale farmers. The region has the task of competing with large producers who have been able to provide their product at lower prices with their ability to produce at lower costs with advancements in operations.

IV. EXPLORATORY FACTOR ANALYSIS

a) Principle Component Analysis (PCA) for Product Development

The study tested validation of data for product development using exploratory factor analyses. SPSS

version 24, the results of this factor analysis, with the assumption of extracting via principal components method and rotating via Varimax were presented in table 4.3.

Table 1.3: Factor Analysis for Product Development

Rotated Component Matrix ^a	Component		
	1	2	3
Many new products have been developed through R&D	.848		
The R&D department activities have been recognized by industry players	.838		
The research and development department has been sufficiently funded	.816		
The firm has a research and development department	.793		
The firm promotes creativity among various developments by investing in their ideas	.494		
Processes in product development are adopted from industry practises		.855	
There is a defined policy governing product development process		.828	
Management defines the processes a new product will go through before development		.629	
There is a minimum of five processes that a new product has to go through before it is developed		.595	
The firm new products are received well in the market due to high level of innovation			.755
The firm level of innovativeness in new product development has been recognised in the past			.695
Intra-preneurship in the organisation has led to the development of new products			.694
Total Variance Explained			
Initial Eigen values	4.389	2.119	1.027
% of Variance	36.576	17.656	8.558
Cumulative %	36.576	54.232	62.789
KMO and Bartlett's Test			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			.847
Bartlett's Test of Sphericity Approx. Chi-Square			1412.944
Df			66
Sig.			.000
Extraction Method: Principal Component Analysis.			
Rotation Method: Varimax with Kaiser Normalization.			
Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 5 iterations.			

Source: Field Data, (2020)

The 12 items for product diversification were subjected to principal components analysis using SPSS version 24. Prior to performing PCA, the suitability of data for factor analysis was assessed. Factors with factor loadings of above 0.5 and above were retained for further data analysis. All items met this criterion and none was dropped. Therefore, the 12 items were retained for further analysis. The Kaiser-Meyer-Olkin Measure value was 0.847 exceeding the recommended value of 0.6 (Kaiser 1970, 1974) and Bartlett's Test of Sphericity (Bartlett 1954) was significant with p value less than 0.000 (Bartlett's test=1412.944, $p < .05$)

indicating the manifestation of factorization of 3 factors for product diversification.

Principal components analysis revealed the presence of two components with Eigen Values exceeding 1, explaining 36.576, 17.656 and 8.558 of the variance respectively. An item is considered to belong to a factor component if its factor loading corresponds to that particular component and is relatively higher than its factor loadings in the other factor components. The two components explained a total of 62.79% of the variance.

b) Correlation Analysis

Results indicates that Product development strategy had a strong, positive and significant relationship ($r=.716$, $n=316$, $p <0.05$) with firm performance.

c) Regression Analysis

Product Development Strategy and Firm Performance.

The objective of this study was to establish the role of product development strategy on performance of tea factories in Kenya. The study predicted that product development had no significant statistical effect on firm

performance. A simple regression model was used to determine the relationship between product development strategy and firm performance. The model that tested the hypothesis was as follows.

$$Y = \beta_0 + \beta_1 X_1 + \epsilon \dots\dots\dots i$$

Where:

- Y -Firm Performance,
- β_0 -Constant (coefficient of intercept),
- X_1 -Product Development Strategy
- ϵ - The error term

Table 1.4a: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.716 ^a	.513	.511	.52640

a. Predictors: (Constant), Product Development

Source: Field Data (2020)

Results in Table 1.4a showed that product development had ($R^2 = .513$), meaning that, product Development, explain 51.3% of the changes in firm

performance (dependent variable) The ANOVA results were presented in table 4.4b

Table 1.4b: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	91.618	1	91.618	330.640	.000 ^b
	Residual	87.008	314	.277		
	Total	178.626	315			

a. Dependent Variable: Firm Performance
b. Predictors: (Constant), Product Development

Source: Field Data (2020)

The ANOVA model showed model fitness for influence of product development strategy on firm performance was statistically significant ($F = 330.640$, $p <0.05$). Given that the calculated $F = 330.640$, while the $F_{critical} = 3.94(1,314)$. Then $F_{calc} \geq F_{critical} \alpha 0.05$. This finding indicated that product development is a significant predictor on firm performance, hence the null hypothesis was rejected and it was concluded that product development strategy had a significant effect on firm performance.

adapted through rebranding and repackaging. Resulting performance was seen as positive in output turnover and sale quantities; capacity utilization was found to be moderate, while profitability after tax indicated fluctuating results. Performance was found to be responsive to improvement of product procedures, but poor in introduction of new products since maximization is yet to be actualized. Kinyanjui (2015) also alluded that most of the firms that have diversified in production processes, products and market, were found to be coming with new products, improving on existing ones or adopting new technology to enhance efficiency. These findings undoubtedly indicated that product development is key in tea factory performance.

The findings were in agreement with those of Maurice and Scholastica (2016), who found that creativity of the innovation procedure exert a positive influence on product development and on an organization's performance. In the same way, McAdam and Keogli (2016) found out that the company's/firms' inclination to development was of important in the competitive environments in order to obtain bigger competitive advantages. Further findings by Mbithi, Rambo, and Muturi (2015) indicated that introduction of newer products has been, to a significant degree, negligible, while improving of existing products has

The regression coefficients in table 1.4c below established the mean change in firm performance for each unit change in the product development Strategy.

Table 1.4c: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	
	B	Std. Error	Beta	t Sig.
(Constant)	.401	.189		2.120 .035
¹ Product Development	.910	.050	.716	18.184.000

a. Dependent Variable: Firm Performance

Source: Field Data (2020)

Findings showed that product development strategy had coefficient of estimate which was significant basing on $\beta_1 = 0.716$ ($p < 0.05$). The effect of product development strategy was more than 18 times the effect attributed to the error; this was indicated by the t-test value = 18.184 Based on the above results, the following simple linear regression model was derived.

$$Y = 0.401 + .910x_1$$

V. SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

a) Product Development Strategy and Performance of Selected Tea Factories

The study findings indicated that various processes are needed for product development which can be adopted from industry practices. This is interpreted to mean that there is a need for technology adoption in order to enhance product development. The study results indicated that there was a significant relationship between product developments of firms and performance. The study finding noted that advertising is important in market development. This is interpreted to mean that the tea marketing farms are keen to tap into new markets where they can sell various tea products so as to fight emerging competitions through advertising campaigns on the products on offer.

b) Conclusions

Product development strategy in tea factories has significant effect on performance of these factories however various processes are needed for product development which can be adopted from industry practices. These processes are often dictated by research and development, levels of innovation and creativity, intra-preneurial initiative as well as having favourable policy frame work. Most factories had little to show in terms of their product development processes other than depending on the experience of some employees though the respondents affirmed the essence product development strategies.

c) Recommendations of the Study

The researcher further recommended that the management need to promote creativity among various product development processes by investing in new and

viable ideas, putting more funds to the research and development department so as to enable it come up with new products that can cope with the global market. Factories which have put resources in research and development have often improved their innovative skills as well as creativity in product development processes and this has made their products more appealing to the target clientele and minimized production costs.

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