

Product development and performance of selected small and medium manufacturing enterprises in Busia County, Kenya

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ABSTRACT

Despite the enthusiasm among researchers and practitioners, the effect of product development on small and medium manufacturing enterprises (SMMEs) performance has not been thoroughly examined. The study was anchored on theories, namely; Resource based view, Dynamic Capability and Discovery Theory of Entrepreneurship. The objective of the study was to determine the effect of product development on performance of selected small and medium manufacturing enterprises in the manufacturing sector in Busia County, Kenya. The study targeted 821 employees from registered selected small and medium manufacturing enterprises in Busia County, Kenya. A sample size of 269 was drawn from a total population of 821 employees to represent the whole population. The study adopted a survey research design. The study used a questionnaire as a tool of data collection. Pilot study was carried out on employees within the organizations in Busia County, Kenya, that were not part of the major study. The study was analyzed by using descriptive and inferential statistical techniques by the initiation of Statistical Package Social Sciences (SPSS). The study found that product development [$B = 0.698$, F-Statistic (1,261=201.035), $P=0.000$] significantly and positively affected performance of SMMEs in Busia, Kenya. The study recommends that SMMEs in Busia County should prioritize continuous innovation in product development. Policymakers and stakeholders must enhance the enabling environment by providing access to innovation training, improving infrastructure, and facilitating research and development support. Strengthening this area will significantly boost the competitiveness, sustainability, and financial performance of small and medium manufacturing enterprises (SMMEs) in the region.

Keywords; Intrapreneurial Innovations, Product Development, Performance

I. INTRODUCTION

International Finance Corporation (2010) indicates that small and medium enterprises (SMMEs) in Africa have been praised as the driver of growth in developing and emerging economies. SMMEs which have been legally registered are said to contribute up to 45 percent of total employment and up to 33 percent of national income (GDP) in third world countries. When SMMEs which are not legally registered are considered, the proportion increases. SMMEs are an essential part of the economic fabric of developing countries (Dehnokhalaji et al., 2017). Intrapreneurial innovation is the process by which individuals within an existing organization engage in entrepreneurial behavior to develop new products, services, processes, or business models that improve performance and competitiveness (Jansen et al., 2023). The views of Lekmat and Selvarajah (2020), Nguyen et al., (2017) in reference to Thailand, Malaysia and European Union are important in understanding the issues affecting entrepreneurs.

In Africa, Nigeria as an emerging economy has realized the critical role which SMMEs play for a country to develop (Akinwale et al., 2017). In Nigeria, Small and medium enterprises have been engaging in innovation practices to improve performance. Regardless of the crucial role played by SMMEs in Nigeria, there are several challenges faced not limited to lack of access to appropriate technology and absence of Research and Development to boost the sector (Eniola & Entebang, 2020). Regionally, that is East Africa, which has formed an economic zone known as East African Community (EAC) to help expand the market for its SME products. In this region, Tanzania's manufacturing SMMEs continue to lag behind than those of the other countries in the region in terms of quantity and quality of the industrial goods that were produced and exported due to its reliance on agricultural sector (Rabia et al., 2019).

A study by Martin and Namusonge (2023) in Kenya established that process innovation, product and technological innovation are critical to the performance of SMMEs firms. However, the study did not explain the role of new market innovation in enhancing the performance of SMMEs companies.

1.1 Statement of the Problem

In business, organizations that innovate achieve competitive advantage and outshine those that do not innovate (Yu & Schweisfurth, 2020). Declining trend in product development and a high level of attrition affects performance of

the organizations. The manufacturing sector can facilitate the achievement of the Kenya vision 2030 objective through the introduction of novel products or by significantly improving the existing products with respect to their characteristics or intended uses.

The challenges facing SMMEs may be partly be addressed by Product Development as it is suggested as key driver of economic performance and growth of small firms. Ge and Campopiano (2022) studied innovation among Information and Communication Technology techno-preneurs in Malaysia but used a small sample of five software firms and hence their results could not be generalized. Atalay et al., (2013) studied the relationship between product development and firm performance in Turkey but did not specify the size of the firms and hence the results could not be generalized. This study would address these gaps by undertaking an empirical study on the effect of product development on performance of SMMEs in Busia County, Kenya.

1.2 Research Objective

To determine the effect of product development on performance of selected SMMEs in Busia County, Kenya

1.3 Research Hypothesis

H_{01} : There is no significant effect of product development on performance of selected SMMEs in Busia County, Kenya

II. LITERATURE REVIEW

2.1. Theoretical Review

2.1.1 Resource-based View Theory

The Resource-Based View (RBV) of the firm is associated with Penrose (1959), who argued that firms can be understood in terms of the resources they possess and the productive services that can be derived from those resources. The perspective was subsequently developed into a theory of competitive advantage, particularly through the work of Barney (1991), who argued that firms can achieve sustained competitive advantage when they possess resources that are valuable, rare, imperfectly imitable and non-substitutable.

The RBV emphasizes that firms differ in the resources and capabilities they control and that these differences can influence their performance. Resources may include physical assets, financial resources, human skills, knowledge, technology and organizational capabilities. Capabilities refer to the firm's ability to combine and deploy these resources effectively in undertaking business activities.

The theory is relevant to the present study because product development requires firms to utilize and combine different resources, including financial resources, employee knowledge, technological capabilities, market information and managerial skills. SMMEs that possess and effectively utilize such resources may be better positioned to develop new or improved products, respond to customer requirements and compete effectively in the market. Consequently, differences in the resources and capabilities available to SMMEs may contribute to differences in their product development activities and ultimately their performance.

However, the RBV has been criticized for placing considerable emphasis on existing resources and competitive positions while giving less attention to how firms renew and reconfigure resources in rapidly changing environments. This limitation provides a basis for complementing the RBV with Dynamic Capabilities Theory.

2.1.2 Dynamic Capability Theory

Dynamic Capabilities Theory was developed by Teece, Pisano and Shuen (1997) to explain how firms create, integrate and reconfigure internal and external competences in response to changing environments. The theory extends the resource-based perspective by emphasizing that competitive advantage does not depend only on the resources a firm possesses but also on its ability to renew and reconfigure those resources as the business environment changes.

Dynamic capabilities enable firms to identify opportunities and threats, seize opportunities and transform their resources and organizational activities in response to changing market conditions. Teece (2007) further conceptualized dynamic capabilities around the processes of sensing opportunities and threats, seizing opportunities and transforming or reconfiguring organizational assets and capabilities.

The theory is relevant to the present study because product development requires SMMEs to respond to changes in customer preferences, technology, competition and market conditions. Through dynamic capabilities, firms can acquire new knowledge, adopt appropriate technologies, modify existing products and develop new products that respond to changing customer requirements. The ability to continuously improve and reconfigure products can therefore enhance competitiveness and contribute to improved organizational performance.

The theory also provides an explanation for why firms operating in the same environment may achieve different performance outcomes. SMMEs may have access to similar markets and resources but differ in their ability to identify

market opportunities, acquire knowledge, integrate new technologies and transform their products. Thus, the ability to develop and continually improve products can be viewed as an important dynamic capability that may contribute to SMME performance.

2.2.3 Discovery Theory of Entrepreneurship

Discovery Theory of Entrepreneurship is associated with Kirzner (1973), who emphasized the role of entrepreneurial alertness in identifying previously unnoticed opportunities in the market. According to Kirzner, entrepreneurs discover opportunities arising from market imperfections and act upon them through entrepreneurial activities.

The theory is relevant to product development because the identification of unmet customer needs and market opportunities can motivate firms to develop new or improved products. Entrepreneurially alert SMME owners and managers may identify changes in customer preferences, gaps in existing product offerings and emerging market opportunities and subsequently introduce products that address those needs.

In the context of manufacturing SMMEs, product development may therefore represent an entrepreneurial response to opportunities discovered in the market. Firms that are more capable of identifying and responding to such opportunities may introduce products that attract new customers, retain existing customers and improve competitiveness. These outcomes can subsequently contribute to improved firm performance.

The theory therefore complements the Resource-Based View and Dynamic Capabilities Theory. While the RBV explains the importance of resources and capabilities, Dynamic Capabilities Theory explains how firms reconfigure those resources in changing environments, while Discovery Theory explains how entrepreneurial actors identify and respond to market opportunities. Together, the theories provide a theoretical basis for examining the relationship between product development and the performance of selected SMMEs in Busia County, Kenya.

2.2 Empirical Review

Empirical studies have established that product development and innovation are important determinants of firm performance, particularly among small and medium-sized enterprises. Akinwale et al. (2017) examined the impact of technological innovation on the profitability of SMEs in Nigeria and established that technological innovation contributes positively to SME profitability. The study demonstrates that the adoption and application of new technologies can enhance operational efficiency and improve firm performance. However, the study focused on technological innovation and profitability and did not specifically examine product development among manufacturing SMMEs.

Atalay et al. (2013) examined the relationship between innovation and firm performance among firms in the Turkish automotive supplier industry. The study established a positive relationship between innovation and firm performance, indicating that firms that engage in innovative activities are more likely to achieve improved performance. Although the study provides evidence on the importance of innovation to firm performance, its focus on the automotive supplier industry limits the generalization of its findings to small and medium manufacturing enterprises operating in other contexts.

Yu and Schweisfurth (2020) investigated Industry 4.0 technology implementation among SMEs in the Danish-German border region. The study established that the implementation of new technologies provides SMEs with opportunities to improve their innovation capabilities and competitiveness. The findings suggest that technological advancement can support firms in developing improved products and processes. However, the study was conducted in a European context and therefore does not adequately explain how product development affects the performance of SMMEs in a developing-country context such as Kenya.

Lekmat et al. (2018) examined the relationship between market orientation, entrepreneurial orientation and firm performance in Thai SMEs, with marketing capabilities as a mediating factor. The study established that market orientation and entrepreneurial orientation are important in enhancing firm performance through the development and application of marketing capabilities. The findings imply that firms that understand customer needs and respond to changing market conditions are better positioned to develop products that enhance their competitiveness. Nevertheless, the study did not directly examine product development as an independent factor affecting SMME performance.

Acikdilli et al. (2022) examined export market orientation, marketing capabilities and export performance of SMEs in an emerging market. The study established that market orientation and marketing capabilities are important resources for improving export performance. The findings demonstrate the importance of understanding market requirements and developing appropriate capabilities to enhance firm performance. However, the study focused on export performance rather than the direct effect of product development on the performance of manufacturing SMMEs.

Jansen et al. (2023) examined how firms build, lead and sustain rapid growth over time. The study emphasizes the importance of organizational capabilities, innovation and the ability of firms to respond to changing business environments in sustaining growth. The findings support the view that firms need to continuously develop and

reconfigure their capabilities to achieve sustained performance. However, the study was not specifically undertaken among SMMEs in Kenya and did not directly establish the effect of product development on firm performance. In Kenya, Martin and Namusonge (2023) established that process innovation, product innovation and technological innovation are critical to the performance of SMMEs. The findings indicate that firms that introduce new or improved products and processes are more likely to enhance their performance. However, the study did not adequately explain the specific contribution of product development to SMME performance or examine the role of new market innovation. Therefore, there remains a contextual and empirical gap regarding the effect of product development on the performance of manufacturing SMMEs in Busia County.

III. METHODOLOGY

3.1 Research Design

The study adopted a survey research design. According to Kothari and Garg (2014) survey research method is devoted to the gathering of information about prevailing conditions or situations for the purpose of description and interpretation. The method focuses on quantitative research in a single study so as to understand the research problem. This type of research method is not simply amassing and tabulating facts but includes proper analyses, interpretation, comparisons, identification of trends and relationships. This type of research allows for a variety of methods to recruit participants, collect data, and utilize various methods of instrumentation (Check & Schutt, 2012). Survey research design is a very valuable tool for assessing opinions and trends.

3.2 Study Population

In this study the target population consisted of employees of manufacturing SMMEs in Busia County. Only registered SMMEs in Busia County was considered. For purposes of this study the accessible population was 821 respondents who were drawn registered SMMEs in Busia County.

3.3 Sampling Frame/ Technique

A sample size of 269 respondents was drawn from a total population of 821 employees to represent the whole population. From the target population of 821, Taro Yamane (1967), sample size formula modified by Myers and Kent (2008) was used to select a sample size of 269 employees as shown below:

$$n = N / (1 + Ne^2)$$

Where:

n = Sample size

N = Population size

e = the error of Sampling

This study allowed the error of sampling of 0.05. Thus, sample size was as follows:

$$n = 821 / (1 + 821 * 0.05^2) = 269$$

The sample size was distributed proportionally according to Neyman's allocation formula (Singh & Singh Mangat, 1996). The purpose of the method was to maximize survey precision, given a fixed sample size. With Neyman's allocation, the best sample size for cluster h would be: $n_h = (N_h / N)$

Where,

n_h - The sample size for cluster h, n - Total sample size,

N_h - The population size for cluster h, N - The total population

3.4 Data Collection Instruments

This study used questionnaires to collect primary data questionnaire.

3.5 Data Processing and Analysis

The quantitative data collected was analyzed by Statistical Package for Social Sciences (SPSS 28) where descriptive statistics was computed to help in describing and interpreting data in line with study objectives. For variable relationships, correlation and regression analysis were examined. Analyzed data was presented by use of tables. The Analytical model for the study was ordinary least squares regression model that took form of as below:

$$Y = \alpha + \beta_1 X_1 + \epsilon$$

Where;

Y= Performance

α = Constant Term

β = Beta Coefficient –This measured how many standard deviations a dependent variable changed, per standard deviation increase in the independent variable.

X_1 = Product Development.

 ϵ = Error term

IV. FINDINGS & DISCUSSION

4.1 Response Rate

This study adopted stratified random sampling method that did not favor any firm. The study dispensed and administered 269 questionnaires successfully. Only 263 responded amounting to 97.32% response rate on aggregate.

4.2 Descriptive Statistics;

Product Development and Performance

Table 1

Product Development

Statement	1	2	3	4	5	Mean	SDV
The product development process is easily understood	1.4(2)	2.2(3)	0(0)	23.9(33)	72.5(100)	4.64	0.734
The organization has a product development strategy in place	2.9(4)	26.8(37)	31.2(43)	30.4(42)	8.7(12)	3.15	1.010
The organization has a department purely for research on product development.	2.2(3)	13.8(19)	39.9(55)	32.6(45)	11.6(16)	3.38	0.937
Product development practices are known	2.9(4)	23.2(32)	35.5(49)	26.8(37)	11.6(16)	3.21	1.021
Overall mean						3.60	

According to the study findings in Table 1 indicate that product development practices were generally perceived favorably among the selected SMMEs. The statement that the product development process is easily understood recorded the highest mean score of 4.64 (SD = 0.734), with 96.4% of respondents either agreeing or strongly agreeing. This suggests that most respondents had a clear understanding of the product development process within their organizations.

The statement that the organization has a product development strategy in place recorded a mean of 3.15 (SD = 1.010). A combined 39.1% of respondents agreed or strongly agreed, while 29.7% disagreed or strongly disagreed. This indicates that the existence of formal product development strategies varies across the selected SMMEs. The finding may suggest that although firms understand product development, not all have formal strategies to guide the process.

The organization having a department purely for research on product development recorded a mean of 3.38 (SD = 0.937). A combined 44.2% of respondents agreed or strongly agreed, compared with 16.0% who disagreed or strongly disagreed. The finding indicates a moderate presence of dedicated product development research structures among the SMMEs.

The statement that product development practices are known recorded a mean of 3.21 (SD = 1.021). A combined 38.4% of respondents agreed or strongly agreed, while 26.1% disagreed or strongly disagreed. This suggests that knowledge of product development practices exists among the respondents, although the level of awareness is not uniform across the firms.

The study's findings highlight varying perceptions of product development among SMMEs in Busia County. The relatively favorable views on process clarity and product development practices resonate with Ibidunni et al., (2020), who suggest that knowledge transfer often informal, can drive innovation capabilities in SMMEs even in resource-constrained settings. However, the lack of a formal product development strategy among many firms reflects challenges.

Respondents indicated that introducing new products has significantly enhanced their market competitiveness. Many SMME owners noted that by diversifying their product lines, they were able to meet varying customer needs, which led to increased customer satisfaction and loyalty. Several mentioned that improved or customized products attracted new customers and opened up opportunities in untapped market segments. Some reported a clear correlation between product innovation and revenue growth, citing seasonal products and updated packaging as key strategies. However, others highlighted challenges such as the high costs of product development and lack of technical knowledge, which limited their ability to innovate consistently. Despite these constraints, most agreed that product development positively influenced their performance and was a key factor in their business growth trajectory.

Many participants attributed business success to the ability to continually improve their product offerings. They emphasized that product development allowed them to stay ahead of competitors and respond quickly to market trends and customer feedback. Some mentioned that developing locally tailored products increased demand and helped build strong brand identity within Busia County. However, a few respondents expressed concerns that product development

could be risky and resource-intensive, especially when outcomes were uncertain. Some cited lack of research and development support and limited market data as barriers. Nonetheless, they believed the long-term benefits including improved quality, customer trust, and revenue justified the investment in product development (Ramaseshan, Caruana & Pang, 2002). Overall, most SMMEs acknowledged that innovation in products had a notable effect on business sustainability and customer engagement.

4.3 Inferential Statistics

This study undertook inferential statistics which comprised of linear regression analysis. The purpose of regression analysis was to test the study null hypotheses and therefore achieve study specific objective. The hypothesis was tested at significance level of 0.05. Correlation Analysis as indicated in Table 4.7 shows that there is significant linear relation between independent and dependent variables. The results indicated there was relationship between product development and performances in Busia County, Kenya, hence there was a positive and significant value ($R=0.666$, $P=.0000$). This implies that the product development influences performance of Busia County, Kenya.

Table 2

Pearson Correlation Analysis

		Performance
Product development	Pearson Correlation	1
	Sig. (2-tailed)	
	N	263
Performance	Pearson Correlation	.660**
	Sig. (2-tailed)	<.001
	N	263

Product development exhibited the strongest relationship with performance ($r = .660$, $p < .001$), indicating a strong and positive association, suggesting that effective product development contributes significantly to improved performance among SMMEs in Busia County. The result aligns with previous research. Ramaseshan, Caruana and Pang (2002) demonstrated that market-oriented product development correlates strongly and positive with performance. Oyebola et al. (2022) found that customer-driven innovation enhances performance in Nigerian technical colleges, supporting the positive and significant relationship.

Salgado et al., (2018) showed that strategic investments in product development enhance competitiveness and performance in small technology firms. However, the researcher cautioned that high failure rates in product development limit consistent performance gains in some contexts, whereby, the study found it was insignificant among SMEs.

4.3.1. Product development and Performance of Selected SMMEs

The first objective of the study was to determine the effect of product development on performance of selected SMMEs in Busia County. The study presented inferential statistics which include simple linear regression analysis to achieve the objective and therefore, test the first null hypothesis that posits H_{01} : There is no significant effect of product development on performance of selected SMMEs in Busia County, Kenya.

Table 3

Model Summary; Regression for Product development and Performance of selected SMMEs

Model Summary ^b								
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate				
1	.660 ^a	.435	.433					.69363
ANOVA ^a								
Model	Sum of Squares		Df	Mean Square	F	Sig.		
1	Regression	96.723	1	96.723	201.035			.000 ^b
	Residual	125.574	261	.481				
	Total	222.297	262					
Coefficients ^a								
		Unstandardized Coefficients		Standardized Coefficients				
Model		B	Std. Error	Beta		T	Sig.	
1	(Constant)	1.014	.170			5.959	.000	
	Product development	.698	.049	.660		14.179	.000	

a. Dependent Variable: Performance of selected SMMEs

From the table 4.22, the findings indicated that product development had a value of $R^2 = 0.435$ which translated to 43.5%. This was the percentage variation in performance of selected SMMEs as explained for by product development, while 56.5% was caused by other factors not explained because the model addressed product development and performance of selected SMMEs. ANOVA results showed that $F(1, 261) = 201.035$ and P value was 0.000. Tests were done at 0.05 or 5% level of significance. The results indicated that product development had a statistically positive and significant effect on explaining variation in performance of selected SMMEs hence the model is feasible.

The value of regression coefficient $B = 0.698$ indicated that an increase in a unit of product development was associated with an increase in 0.698 units of performance of selected SMMEs in Busia County. Therefore, the results led to the rejection of the first null hypothesis and concluded that, product development had a statistically positive significant effect on performance of selected SMMEs in Busia County. Based on the regression coefficient results, simple linear regression model equation was written as

$Y = 1.014 + 0.698X_1$; where Y is Performance selected SMMEs, X_1 is product development.

From the results, it is evident that product development has positive effect on performance of selected SMMEs in Busia County. This finding aligns with Ibidunni et al., (2020), who found product development directly, contributes to SMME performance in European markets. Cruz and Tavares (2026) also demonstrated that product development is a key factor in performance among technology-based SMMEs. Ramaseshan, Caruana and Pang (2002) similarly found that product development initiatives improve new product success and business performance. Conversely, Bogers et al. (2019) argued that product development success depends on tailoring PD models to specific industries and contexts, a challenge for some SMMEs. Biazzo and Filippini (2021) also cautioned that high failure rates in product development processes may offset potential gains if strategic alignment is weak. Nonetheless, the present study's results confirm that, overall; product development is a robust predictor of SMME performance in Busia County, Kenya.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The study concluded that product development positively influences the performance of selected SMMEs in Busia County. Respondents acknowledged the role of product development in improving profitability, output, and innovation within their firms. The analysis consistently demonstrated that firms that prioritize product development tend to experience better overall performance. Therefore, the hypothesis (H_{01}) stating that there is no significant effect of product development on performance is rejected. This confirms that product development is a key intrapreneurial innovation driver in enhancing the competitiveness and growth of SMMEs in Busia County. Firms that invest in product development strategies are likely to experience substantial performance benefits.

5.2 Recommendations

SMMEs managers in Busia County should allocate dedicated resources to develop and implement clear product development strategies that align with market needs. This includes training staff on product innovation and involving customers in feedback loops to refine products. The County Government of Busia, through its trade and Industrialization department, should establish innovation hubs that support SMMEs in developing and testing new products. These hubs can provide access to shared R&D facilities, technical expertise, and mentorship. By supporting product development initiatives, both the managers and county officials can foster competitive and innovative SMMEs that thrive in the evolving market landscape, thereby enhancing performance.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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