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The Influence of Product Innovation on the Performance of Small and Medium Manufacturing Enterprises: The Mediating Role of Market Innovation in Temeke

Ndahani Ng'wasa [a] & Henrick Kipangula [b]

a. The Open University of Tanzania, Tanzania
b. Department of Accounting and Finance, Mzumbe University, Tanzania.

Correspondence: ndahanij@gmail.com

Abstract

The purpose of the study was to assess the influence of product innovation on the performance of small and medium enterprises (SMEs) when mediated by market innovation. This study adopted an explanatory research design to establish the relationship between variables. This study was conducted in Dar es Salaam, Temeke District in Tanzania from a total of 277 sample respondents. The study employed a causal research design with a quantitative approach. Data was collected through the self-administered questionnaire to SMEs owners and managers. The collected data was analyzed using the Structural Equation Model (SEM) to establish the extent to which product innovation influences SMEs' performance when mediated by market innovation. According to the findings, product innovation had a significant and positive effect on market innovation, and market innovation had a positive and significant effect on SMEs performance. Consequently, this study concludes that product innovation, when mediated by market innovation, significantly improves the performance of SMEs. This study's findings inform the Tanzanian SMEs Policy of 2003, in keeping up with the rate at which innovations are occurring in the SMEs space. The findings are an important input to the process of SMEs Policy 2003 regarding innovation advancement. Moreover, the findings add value to the frontier of SMEs innovation investment for enhanced performance.

Keywords: *SMEs, Product Innovation, Market Innovation, SMEs Performance*

1.0 INTRODUCTION

Small and Medium-sized Enterprises (SMEs) are pivotal drivers of global economic growth, accounting for approximately 90% of businesses and over 50% of employment worldwide (Kanire et al., 2024). In emerging economies, formal SMEs contribute up to 40% of national income (GDP) (World Bank, 2022). To achieve sustainable performance in an increasingly competitive landscape, SMEs must integrate new technologies and foster a culture of innovation across technical, managerial, and commercial domains (Herte et al., 2021). The significance of SMEs is particularly pronounced in Sub-Saharan Africa, where they play a crucial role in poverty alleviation, GDP growth, and employment generation (Muiruri, 2017). African SMEs constitute over 95% of businesses, generate 60% of employment, and contribute approximately 40% to national GDPs (Kiyabo & Isaga, 2019). Establishing a connection between SMEs and innovation processes is crucial for companies to facilitate the development and accumulation of innovation capacities

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required for functioning and trading, as highlighted in the Latin American Economic Outlook (ECLAC, 2013). The correlation between information flows and innovation activities is of utmost importance in shaping the results of these activities, which in turn impact the overall dynamics of the flow (ECLAC, 2013). In order to bolster the competitiveness of their companies and products, it is crucial for owner-managers to formulate strategic plans. An effective strategy that can be implemented is promoting innovation (Morris, 2018). The organisational entity possesses the choice to embrace either an innovative, imitative, or hybrid methodology. According to Nguyen et al. (2017), the company has the authority to choose and plan the execution of its innovation path, which can involve several areas such as product, process, organisational structure, marketing, or a combination of these domains. For the sake of enhancing their sustainability, contentiousness, and performance, firms must possess the resources and capabilities to consistently foster the development of innovative goods and approaches (Ungerman et al., 2018). According to Maldonado-Guzmán et al. (2019), the enhancement of SMEs' performance is contingent upon innovation. Innovation enables organisations to develop novel products that are favored by consumers over existing options, leading to a competitive advantage over competitors (Hu et al., 2020). Innovation serves as a key driver for growth strategies aimed at market expansion, increasing market share, and acquiring competitive advantage. Companies have begun to recognize the importance of innovation in response to increased competition in global markets. This is primarily driven by the rapid evolution of technologies and intense global competition, which swiftly diminishes the value provided by current products and services. Innovation plays a crucial role in corporate strategies due to several factors. These include the implementation of more efficient manufacturing processes, achieving superior performance in the market, cultivating a positive reputation among customers, and attaining a sustainable competitive advantage (OECD, 2005). Innovation is a critical determinant of SME competitiveness and sustainability (Kitole, 2024). In Tanzania and Temeke in Particular, the performance of SMEs has been suboptimal, leading to frequent business closures and impeding the realization of their full socio-economic potential (Kitole et al., 2023). A lack of innovative culture has been identified as a significant impediment to SME growth and sustainability in the country (Jeje, 2022). Recent scholarly literature has extensively examined the effects of innovation on SME performance in both developed and developing economies (Kitole et al., 2024; Jeje, 2022). However, some studies have yielded conflicting results (Kitole & Sesabo, 2022; Kitole & Gneda, 2024), partly due to the substantial resources required for innovation, which can pose significant barriers for resource-constrained SMEs (Hervás-Oliver et al., 2021).

2.0. LITERATURE REVIEW

2.1 Theoretical Review

The 1930s Innovation Theory of Profit by Joseph A. Schumpeter held that entrepreneurs can profit from commercialising successful ideas (Schumpeter, 1939). Schumpeter believed in "creative destruction," which drives economic change, as he explained in Capitalism, Socialism, and Democracy. Schumpeter identified five assumptions for innovation from this perspective. The fundamental assumptions are the introduction of a new product or a modified version of an existing product, the implementation of innovative production or marketing strategies for a product, the exploration of untapped markets (where a particular industry segment was previously absent), the acquisition of new raw materials or partially processed goods, and the establishment or termination of a monopoly position. Schumpeter's Theory of Innovation has

been applied in numerous studies beyond the performance of SMEs. The theory has been applied to examine how entrepreneurial activity and technological advancements transform industries, creating new market structures that drive economic growth (Acs, Audretsch, and Lehmann, 2013). Innovation in large industries like the automotive and pharmaceutical industries has been studied using the theory to determine how continuous technological improvements create long-term competitive advantages and macroeconomic stability (Fagerberg, 2018). Schumpeter's ideas have been used to study how green energy and resource efficiency innovations can disrupt traditional markets and promote environmental benefits, aligning economic progress with ecological goals (Hekkert and Negro, 2009). These applications demonstrate Schumpeter's framework's ability to analyse innovation in firms and economies. The study also adopted Mason and Bain (1950) Market Based View Theory. Market-Based View and Schumpeter's Innovation Theory. Theory can be used to assess how product and process innovation affects SMEs' performance when market innovation mediates. New products and processes disrupt market structures and boost company growth, according to Schumpeter's theory (Schumpeter, 1934). This framework emphasises how innovation transforms businesses because new products attract new customers and improved processes boost productivity. Schumpeter's creative destruction theory suggests that SMEs that innovate their products and processes may perform better. Combining Schumpeter's view with the MBV Theory helps explain how these innovations succeed in the market. MBV Theory emphasises external market conditions and strategic resource use for a competitive edge (Barney, 1991). Researchers can examine how market innovation, such as branding, advertising, or digital marketing, mediates technological advancements (product and process innovations) and SME performance by combining the two theories. Innovations may not yield significant benefits without strategies that adapt to and capitalise on market opportunities. Thus, understanding how firm-level innovations and market-driven strategies interact can help explain SMEs' competitive performance (Teece, 2010).

2.2 Empirical Literature Review

2.2.1 The Effect of Product Innovation on Market Innovation

Product innovation, which involves the development of new or significantly improved products, is widely recognized as a catalyst for market innovation, which refers to the introduction of novel strategies in marketing, distribution, and customer engagement. According to a study by Kafetzopoulos and Psomas (2022), product innovation is pivotal in driving market innovation, particularly in highly competitive industries. Their research found that companies that invested in product innovation saw significant improvements in market strategies, as new products often required firms to explore new markets or reconfigure existing ones to cater to emerging customer needs. This finding is consistent with the earlier work of Tuan (2020), who demonstrated that product innovation enhances a firm's market innovation by encouraging the adoption of cutting-edge marketing techniques and customer outreach strategies. Further empirical support comes from the study by Calantone et al. (2021), which analyzed data from 200 manufacturing firms in Europe and found a positive and significant relationship between product innovation and market innovation. The authors argued that introducing innovative products creates opportunities for firms to differentiate themselves in the market, prompting the need for market innovation to maximize the product's reach and impact. Similarly, Kim and Mauborgne (2021) emphasize the importance of product innovation as a precursor to market innovation, noting that in industries such as technology and consumer goods, new product

developments often lead firms to innovate in their marketing and customer engagement strategies, allowing them to gain a competitive edge. Additionally, a study by Oke et al. (2020) reinforced the connection between product and market innovation. Their research on small and medium-sized enterprises (SMEs) in developing economies revealed that product innovation significantly contributed to market innovation by necessitating the exploration of new distribution channels and promotional strategies. The authors concluded that firms focusing on product innovation were more likely to achieve success in market innovation due to the need to create awareness and demand for new products in uncharted market segments. Moreover, empirical findings by Hameed and Naveed (2022) prove that product innovation drives market innovation by forcing firms to develop novel market entry strategies and customer relationship management practices. Their research surveyed 150 technology firms and found that firms with a strong product innovation capability were more adept at leveraging market innovation to maintain customer loyalty and attract new customers.

2.2.2 The Effect of Market Innovation on SMEs' Performance

Empirical studies have consistently demonstrated the significance of market innovation in improving the performance of small and medium-sized enterprises (SMEs), making it a pivotal strategy for enhancing competitiveness in a dynamic marketplace. One study by Sok and O'Cass (2015) investigated the relationship between market innovation and SME performance in Australia, revealing that market innovation significantly improves SMEs' customer satisfaction and financial performance. By adopting innovative marketing strategies, SMEs were able to differentiate themselves from competitors, leading to higher market share and profitability. Similarly, Schubert (2017) examined German SMEs and found that firms implementing market innovations experienced higher sales growth and increased market reach. The study highlighted that introducing innovative marketing techniques allows firms to access new customer segments, thereby expanding their revenue base and boosting performance. In South Africa, Ngugi and colleagues (2021) conducted a study on the impact of market innovation on SME growth. They concluded that market innovation positively and significantly contributes to SMEs' ability to expand into new geographical markets and diversify product offerings. The study stressed that SMEs using market innovation improved their profitability and achieved long-term sustainability by adapting to changing consumer preferences. Furthermore, Hossain et al. (2020) researched the Bangladeshi SME sector and found that firms embracing digital marketing innovations significantly improved customer engagement and brand recognition. The research emphasized the role of social media platforms in helping SMEs reach a broader audience, which in turn increased their overall performance in terms of sales and market presence. In the Kenyan context, Mwangi and Ngugi (2019) examined the impact of market innovation on the performance of SMEs, particularly in the agribusiness sector. The study found that innovative pricing strategies and promotional tactics significantly enhanced the operational efficiency and profitability of SMEs. Additionally, market innovation enabled these businesses to build stronger relationships with customers, enhancing brand loyalty and competitive advantage. O'Dwyer, Gilmore, and Carson (2009) emphasized that market innovation is essential for SMEs operating in highly competitive industries. Their study, which focused on Irish SMEs, concluded that firms engaging in continuous market innovation outperformed their counterparts in growth, market share, and profitability. These businesses were better equipped to navigate market fluctuations and sustain growth by consistently introducing novel marketing approaches. Moreover, Vrgovic et al. (2020) provided insights into the relationship between market innovation and SME performance in Serbia. They

found that market innovation, particularly in e-commerce and customer relationship management systems, strongly affected performance indicators such as sales revenue and customer retention rates. The study also emphasized that innovative market strategies played a crucial role in enhancing SMEs' competitive positioning in both local and international markets.

3.0. METHODS

The study adopted an explanatory research design. According to Creswell (2014), the explanatory/causal research design determines the extent and characteristics of cause-and-effect relationships between multiple variables. The study focused on Temeke Municipality. Thus, Temeke was chosen for the research for several reasons, including the city's majority of manufacturing facilities, from heavy to light. Dar es Salaam, Tanzania's largest port, is east of Temeke. High industry concentration in Temeke may explain why the most residents live on low incomes (URT, 2022). The area is suitable for the study because it has many SMEs. SMEs were the study's population and unit of analysis. The unit of inquiry was SME managers or owners. SME performance was examined in this study to determine how innovation affects SMEs, so they are well-suited to answer the research questions. This study focused on manufacturing SMEs because they are more likely to innovate than service and trading SMEs. The Temeke District Council Report (2022) lists 897 manufacturing SMEs, which were the study's population. This study used random sampling. Random sampling means respondents have an equal chance of being sampled, which improves research results by eliminating bias (McLeod, 2011). The Municipal Council provided a list of registered manufacturing SMEs, and the research randomly selected respondents based on their phone numbers. The sampling method was used to select 277 Temeke District manufacturing SMEs owners/managers/innovation directors. The Temeke District SME population was used to sample this study. Yamane (1967)'s sample size formula was used to calculate the sample size from 897 registered SMEs;

$n = N/ (1+Ne2)$

Where;

N = Population Size = 897,

n = Sample Size and

e = Error term = 5% (0.05)

Substituting in the Formula;

$$n = 897/ (1+897 \times 0.052)$$

$$= 897/3.2425$$

$$= 277$$

Self-administered closed and open-ended questionnaires were given to 277 SME owners/managers. Before collecting data, the study conducted a pilot study to test tool suitability. The tool was pre-tested with 30 respondents. Pre-tests should have at least 30 respondents, according to Perneger et al. (2015). The questionnaire had six sections, with section one collecting demographic data. All variables were rated on 5-point Likert scales. Agreement was given, with 1 strongly disagreeing and 5 strongly agreeing. The Likert scale's five-point rating

system was simple for survey administrators and respondents. It takes less time and effort to complete this scale than others with higher numerical values. Mobile device screens are better than higher-point scales. Any scale without a neutral option may introduce bias and raise questions about the survey's credibility and conclusions. A questionnaire with multiple items and a point scale over 5 may make it difficult for respondents to accurately self-identify, resulting in frustration, lower response rates, and unreliable results. Data analysis used structural equation modelling. Gefen et al. (2000) say SEM can be used for multivariate statistical analysis like regression, path, and factor analysis. Additionally, researchers can analyse in four ways: 1) Model the relationships between multiple predictors and criterion variables: 2) Create unobservable latent variables: 3) Model-induced error in observed variable measurements: 4) Test the theoretical and measurement assumptions against the empirical data using a statistical test (Chin, 1998b). Therefore, this study used SEM to identify the structural relationship between variables. The process was conducted through SmartPLS 4.0 software. According to Hair (2010), SEM, is a family of statistical models that aims to explain the relationships that exist between a number of different variables. Once the measurement model has been completed, the structural model can be analysed. When evaluating a structural model using Partial Least Square Structural Equation Modelling (PLS-SEM), there are five steps to follow. The following is an explanation of each step in these five processes. The analysis of collinearity issues through the utilisation of a structural model. The Variance Inflation Factor (VIF) must be used to detect lateral collinearity before examining the structural model. Even with vertical collinearity, Kock and Lynn (2012) argue that lateral collinearity, or predictor-criterion collinearity, can misinterpret findings. A high correlation between two variables that are supposed to be causal and assess the same construct is called collinearity. VIF values quantify multicollinearity in statistical models' predictor variables. Diamantopoulos and Siguaw (2006) suggest that VIF values above 3.3 may indicate collinearity.

4.0 RESULTS

This section presents and discusses the findings of the study. However, before the main findings are presented and discussed, the same has been done for the respondents` profiles.

4.1 Respondents Profile

This section presents and discusses the respondents` profile in terms of business location, firm age, firm size and the number of employees. Dahlqvist et al. (2000) found that a firm's location affects its access to finance, skilled labour, subcontractors, infrastructure, and other resources and markets. This study also examined business location. This study found that 42.9% (n=119) were in Changombe, 30.1% (n=75) in Kurasini, and 27% (n=83) in Mbagala. The majority of manufacturing SMEs were in Changombe. Liedholm (2002) examined factors affecting African and Latin American small businesses' survival and growth. The study found that firm location mattered. Urban and commercial firms had a higher chance of survival than rural firms in a given year. Urban and commercial locations correlated with accelerated growth in employee recruitment within a year. In Morocco, Harabi (2003) found that location was important in SMEs' growth and performance. Firm's age is also a critical determinant of firm survival based on the industry (sector) life cycle (Esteve-Pérez *et al.*, 2018). The business experience which is similar to the age of the business was examined by this study to establish how experienced the SMEs were. According to the findings, 44.6% equal to 124 SMEs had an experience of 7 years and above, 29.7% equivalent to 82 SMEs had a business experience of 4 to 6 years, 14.2% equivalent to 39

SMEs had an experience of 1 – 3 years while the remaining 11.5% of SMEs equal to 32 had a less than a year experience in the business. Thus, according to the findings, most of the SMEs had been existing in the business for 7 years and above. This is a good time to track their performance and the impact of their innovation into the business. According to Sidhu and Bhatia (2013), more youthful organisations will be outperformed by more established organisations. More established organisations have an early mover advantage and may have specific competencies and abilities that more youthful organisations may not have developed until now. They can become faster and more profitable as a result. The size of a firm can affect its behaviour and strategic orientation. Firms of different sizes and industries may react differently. Bishop and Megicks (2002) found that firm strategic emphasis varies. Due to their well-established systems and abundant resources, large corporations often take a defensive approach, making decisions that maximise profits and minimise risk. In contrast, small businesses must take more risks to succeed (Moss et al., 2013). Business size is determined by capital investment. This study assessed capital investment using SMEs Policy (2003) categories. This study found that 34.5% (n=96) of businesses had 200 – 800 million shillings of capital, 31.1% (n=87) had above 800 million, 26.6% (n=74) had 5 to 200 million, and 7.8% (n=22) had up to 5 million. Thus, most SMEs invest 100–800 million shillings. This means most SMEs have enough capital to innovate. Maron, Lussier, and Sonfield (2019) also found this, supporting the idea that larger firm owners adopt a strategy of greater innovation but lower risk. Smaller firm owners take more risks but innovate less. According to Newman *et al.* (2021), the presence of a diverse workforce in SMEs contributes to the acquisition of various entrepreneurial skills. Entrepreneurial skills serve as a valuable asset for entrepreneurs, enabling them to effectively analyse various situations, identify potential opportunities, and evaluate the business environment. These skills also aid business managers in effectively managing and assuming the inherent risks and rewards associated with running a business. The existing body of literature suggests that the performance of SMEs can be influenced by various entrepreneurial skills, including effective communication, skill proficiency, and entrepreneurial literacy (Mwangi, 2020). On assessing the number of employees that firms have, this study adopted the categories suggested by Tanzanian SMEs Policy (2003). According to the findings, 52.4% (n=145) had 5 – 49 employees followed by 30.7% (n=85) who had 1 – 4 employees and the remaining 16.9% (n=47) had 50 – 99 employees. Thus, the majority of SMEs had 5 – 49 employees which supports the innovation behavior of the firm. Table 4.2 indicates the SMEs characteristics.

Table 1. Respondents Demographic Characteristics

Variables	Category	Frequency	Percentage
Location of Business	Changombe	119	42.9
	Kurasini	75	27.0
	Mbagala	83	30.1
Firm Age	Less than a Year	32	11.5
	1 – 3 Years	39	14.2
	4 – 6 Years	82	29.7

	7 Years and Above	124	44.6
Firm Size	Up to 5 million shillings	22	07.8
	5 – 200 million shillings	74	26.6
	200 – 800 million shillings	96	34.5
	Above 800 million shillings	87	31.1
Number of Employees	1 – 4 Employees	85	30.7
	5 – 49 Employees	145	52.4
	50 – 99 Employees	47	16.9

Source: Study Findings (2024)

4.2 Results of Measurement Model Assessment

4.2.1 Indicator Reliability

The reliability of an indicator can be quantified by the percentage of its variance attributed to an underlying latent variable. There is a continuous range of values that spans from 0 to 1. Hair, Ringle, and Sarstedt (2011) suggest that if removing an indicator with outer loadings between 0.40 and 0.70 enhances composite reliability and AVE, it is wise to consider its removal. This requirement stems from the necessity for the outer loadings to surpass a threshold of 0.70. It is advisable to omit indicators that have an outer loading of less than 0.40 (Ringle, Wende, and Will, 2005). The reliability of all 13 items was evaluated, achieving an acceptable threshold of 0.7. According to the results, four items—PRD4, MKT4, PERF2 and PERF5—exhibited factor loadings that fell below 0.7. Additionally, just one item (PERF5) exhibited a factor loading lower than 0.4. As a result, the item was excluded from additional analysis.

4.2.2 Internal Consistency

Cronbach's alpha and composite reliability serve as essential tools for evaluating internal consistency. The results presented in Table 2 illustrate Cronbach's alpha test and composite reliability for the constructs. The results reveal that Cronbach's alpha value for PRD stands at 0.726, MKT is at 0.777 while PERF is at 0.765. As a result, all constructs demonstrated Cronbach's Alpha values exceeding 0.7, confirming their reliability. Cronbach's alpha serves as a somewhat imprecise gauge of reliability due to the unweighted nature of the items involved. Unlike Cronbach's alpha, composite reliability takes into account the individual loadings of the construct indicators, resulting in a higher reliability measure. Cronbach's alpha might lean towards being overly cautious, whereas composite reliability could be seen as excessively lenient. As a result, composite reliability was utilised to assess internal consistency. Table 2 demonstrates internal consistency through composite reliability, utilising a threshold of 0.7 and above to assess the reliability of the constructs. Consequently, when all elements are considered together as a unified scale, omega-a (rho_a) serves as an indicator of the composite scale's reliability. The analysis revealed that PRD achieved a composite reliability of 0.760, MKT had 0.799 while PERF recorded a value of 0.844. As a result, every construct demonstrated composite reliability values exceeding 0.7.

4.2.3 Convergent Validity

Convergent validity is how well a construct accounts for element differences. The AVE measures construct convergent validity. Square the loadings of each indicator on a construct and find the mean value to calculate the AVE. Becker, Klein, and Wetzels (2012) recommend an AVE of 0.50 or higher. This threshold indicates that the construct accounts for at least 50% of its constituent items' variance. Convergent validity measures the correlation between multiple construct indicators in alignment. Kline (2011) recommends considering indicator factor loading, composite reliability (CR), and AVE when assessing convergent validity. AVE measured convergent validity, as shown in Table 2 shows that PRD had 0.548 AVE, MKT 0.600 and PERF 0.545. All constructs had AVE values of 0.5 or higher and were acceptable.

Table 2. Internal Consistency and Convergent Validity

Variables	Indicators	Loadings	CA	rho_a	rho_c	AVE
PRD			0.726	0.760	0.826	0.548
	PRD1	0.817				
	PRD2	0.787				
	PRD3	0.776				
	PRD4	0.550				
MKT			0.777	0.799	0.856	0.600
	MKT1	0.771				
	MKT2	0.835				
	MKT3	0.834				
	MKT4	0.644				
PERF			0.765	0.844	0.844	0.545
	PERF1	0.872				
	PERF2	0.637				
	PERF3	0.906				
	PERF4	0.811				
	PERF5	0.284				

Source: Study Findings (2024).

4.2.4 Internal Consistency and Convergent Validity after Modification of Items

After PERF 5 was dropped, this study measured the internal consistency and convergent validity of items. According to the findings, as a result of dropping PERF 5, the CA of PERF improved from 0.765 to 0.825. Moreover, the AVE of PERF improved from 0.545 to 0.665. Therefore,

the dropping of an indicator that had a factor loading below 0.4, as suggested by Ringle, Wende, and Will (2005). Table 3 indicates the results after modification;

Table 3. Internal Consistency and Convergent Validity after Modification

Variables	CA	rho_a	rho_c	AVE
PRD	0.726	0.760	0.826	0.548
MKT	0.777	0.799	0.856	0.600
PERF	0.825	0.841	0.886	0.665

Source: Study Findings (2024).

4.2.3 Discriminant Validity

Discriminant validity measures how distinct constructs are based on empirical evidence. It also examines how much the two intersecting constructs differ (Hair et al., 2014). Fornell and Larcker (1981) introduced the conventional metric and suggested comparing the AVE of each construct to the squared inter-construct correlation, which indicates how much the construct shares variance with other constructs measured reflectively in the structural model. Fornell and Larcker (1981) suggested comparing each construct's AVE to the squared inter-construct correlation. This comparison shows how much variance the constructs share. Hensler, Ringle, and Sarstedt (2015) suggest that model construct AVEs should not exceed their shared variance. Thus, this study assessed discriminant validity using the Fornell-Lacker criterion. This method compares latent constructs to the AVE square root. Fornell and Larcker (1981) suggest prioritising a latent construct's explanatory power based on its ability to explain its own indicators rather than other latent constructs. According to Becker, Klein, and Wetzels (2012), the square root of the AVE for each construct should exceed the correlations with other latent constructs. Table 4 shows that all values exceeded latent variable correlations.

Table 4. Discriminant Validity – Fornell-Larcker criterion

	MKT	PERF	PRD
MKT	**0.917**		
PERF	0.848	**0.902**	
PRD	0.775	0.815	**0.740**

Source: Study Findings (2024).

4.3 Structural Equation Model

Structural Equation Modeling (SEM) refers to statistical models used to test the empirical validity of substantive theories (Lei and Wu, 2007). This study employed Structural Equation Modeling (SEM) to examine the structural associations among variables. Multicollinearity and model fitness were assessed before structural equations. Daoud (2018) argues that the correlation coefficient can indicate multicollinearity but should not be used as a definitive measure. Correlation coefficients only capture bivariate relationships between variables, while multicollinearity captures multivariate relationships. Thus, VIF and Tolerance analysis are recommended to

understand multicollinearity better. Previous research suggests that multicollinearity can occur when the correlation coefficient (R) is more significant than ±0.9 (Senthilnathan, 2019). Thus, the VIF and Tolerance levels supported the model's lack of multicollinearity, as shown in Table 5.

Table 5. Multicollinearity Statistics

Variable	Collinearity Statistics	
	Tolerance	**Variance Inflation Factor**
MKT	0.164	6.086
PRD	0.191	5.247

Source: Study Findings (2024).

The multicollinearity test above indicates that MKT had a VIF value of 6.086, PRCS had a VIF value of 4.662 and PRD had a VIF value of 5.247. Since all the independent variables had VIF values below the commonly accepted threshold of 10, there is no severe multicollinearity problem. Also, before the analysis was done, a goodness of fit for the model was assessed. Results indicate that the model is a good fit based on Standardized Root Mean Square Residual (SRMR) of 0.146 for the saturated model and 0.148 for the estimated model since for a good fit model, the value of SRMR should be 0.08 and above.

Table 6. Model Fitness Test

	Saturated model	Estimated model
SRMR	0.146	0.148
d_ULS	1.669	1.705
d_G	1.121	1.170
Chi-square	1501.034	1532.651
NFI	0.549	0.539

Source: Study Findings (2024)

After the multicollinearity and the model fitness tests were completed, a structural equation model was then run to establish the extent at which PRD influences MKT and the extent at which MKT influences PERF. The results are indicated in the path diagram (Figure 1);

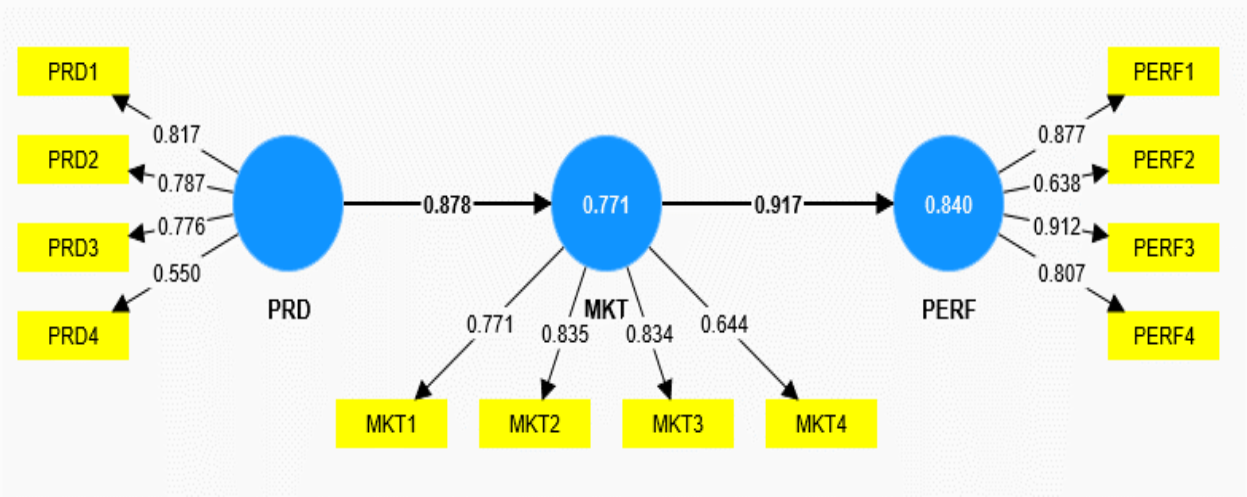

Figure 1. Structural Equation Path-Coefficients
Source: Study Findings (2024)

Apart from the path coefficients shown in Figure 4.1, the findings also produced p-values which show the level of significance of the relationship between constructs. The p-values for both indicators and constructs are indicated in Figure 4.2;

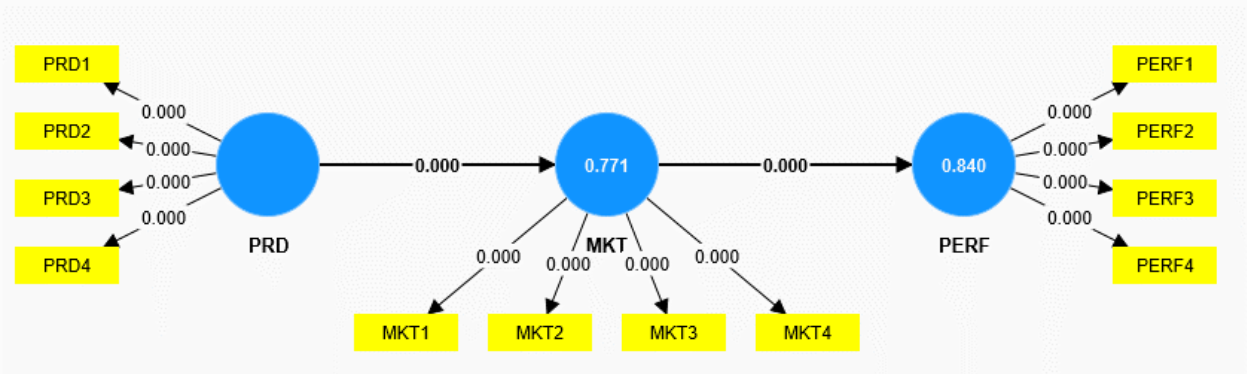

Figure 2. Structural Equation Model P-Values
Source: Study Findings (2024)

Therefore, from the findings in Figure 4.1 and Figure 4.2 the following table (Table 4.11) can be produced indicating the extent of the relationship and the level of significance for each independent variable to the dependent variable.

Table 7. Coefficients and P-Values

Variables	Coefficient	P-value
PRD to MKT	0.878	0.000

MKT to PERF	0.917	0.000

Source: Study Findings (2024)

5.0 DISCUSSION

Based on the findings above, it was indicated that product innovation is positively effective on market innovation. The construct has a coefficient of 0.878 indicating that a unit increase in product innovation leads to 0.878 units increase in market innovation. Moreover, a p-value of 0.000 was obtained indicating that product innovation is positively effective in enhancing market innovation. Recent empirical studies support the positive relationship between product innovation and market innovation. For instance, Nguyen et al. (2022) found that product innovation significantly enhances market innovation in SMEs, promoting competitive advantage. Similarly, Zhao and Li (2021) demonstrated a strong link between product innovation and market expansion in the technology sector. According to Ahmed and Zainab (2023), firms that prioritize product innovation are better positioned to adapt to market changes. A study by Chen et al. (2022) also confirmed that product innovation directly influences market innovation in manufacturing industries. Lastly, Singh and Kumar (2021) found that product innovation drives market innovation by enabling firms to meet evolving consumer demands. Moreover, the study measured the effect of market innovation on SMEs performance. According to the findings of this study, market innovation has a positive and significant effect on SMEs performance. The findings on regression coefficient of 0.917 and a p-value of 0.000 imply that it is significant. Therefore, the results of the study suggest a supporting perspective primarily due to the varying operational environments in which SMEs function. Recent studies consistently highlight the significant impact of market innovation on SMEs' performance. For instance, Agyapong et al. (2021) found that market innovation significantly improves SMEs' competitive advantage, leading to enhanced financial outcomes. Similarly, Lee and Tang (2022) demonstrated that innovative market approaches directly contribute to the growth and sustainability of SMEs. Research by Hossain et al. (2020) further confirmed the positive effect of market innovation on performance metrics like profitability and market share. Moreover, a study by Dike and Umeh (2023) concluded that market-driven innovations are crucial for SMEs' adaptability in evolving markets. Finally, Muhammad et al. (2021) reported that market innovation significantly increases customer satisfaction, which in turn boosts SMEs' overall performance.

6.0 CONCLUSION

In conclusion, the study highlights the critical role that product innovation plays in spurring market innovation, which in turn has a big impact on SMEs' performance. Product and market innovation are positively correlated, which emphasises how crucial it is to keep innovating and improving products in order to satisfy changing consumer needs. SMEs can improve their competitive edge, enhance profitability, and maintain growth in a constantly shifting business environment by encouraging market innovation. The study's findings imply that market innovation helps SMEs enhance customer satisfaction, which is essential for long-term success, in addition to helping

them adapt to external challenges. These innovations enable SMEs to prosper in cutthroat markets, whether they take the shape of enhanced marketing plans, new product offerings, or more effective internal business procedures. Consequently, it is clear that market innovation is a major factor in SMEs' overall performance, expansion, and sustainability since it keeps them adaptable and strong in a market that is becoming more and more dynamic. To optimise chances for success, the strategic emphasis on innovation should continue to be at the forefront of SME development.

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