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Effects of Product Innovation on the Performance of Women-led Micro and Small Enterprises in the Food Processing Industry, Tanzania

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Abstract

Product innovation is an important factor for the performance of enterprises. Based on the Schumpeter's New Combination theory, this paper analyzes the impact of product innovation on the performance of Micro and Small Enterprises (MSEs) in the food processing industry, specifically those led by women. The study utilized a cross-sectional design, and employed stratified random sampling, whereby a total of 297 women entrepreneurs from Dar es Salaam, Arusha, Morogoro, and Dodoma regions participated by completing a structured questionnaire. Additionally, seven (7) women owners of business from each of the involved regions were selected through purposive sampling for Focus Group Discussions (FGDs) and one SIDO officer for structured interview. The collected data were analyzed using the Smart PLS Version 3 Software, employing Structural equation modeling (SEM) for measurement purposes. The PLS Algorithm was employed to establish the reliability and validity of the data through a measurement model. Subsequently, the Bootstrap method was utilized in the structural model to assess the relationship between product innovation and the performance of women-led MSEs. The results showed a significant positive effect between product innovation and the performance of food processing women-led MSEs (t=4.261, p=0.000). Furthermore, the study revealed a

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significant mediating effect of innovative performance between product innovation and women-led food processing MSEs (t=1.981, p=0.006). In conclusion, the study highlights that product innovation enhances the performance of women-led food processing MSEs. This contributes to the theoretical understanding of product innovation and women-led MSEs in the food processing industry, while also providing empirical evidence to support promotion of product innovation by the government agencies responsible for managing women's businesses, with a view to improving their performance.

Keywords: *Product innovation, women-led MSEs, performance, food processing, Structural Equation Modeling*

1.0 INTRODUCTION

Innovation is a new or improved product or process that differs significantly from the firm's previous products or business processes, and that has been introduced into the market (OECD, 2018). Innovation has become the fundamental instrument of business strategies to enter new markets, to increase the existing market share, and to create a competitive advantage in women-led businesses (Benjo and Mwasiaji, 2023; Huang, Li, Wang, and Li, 2022). In the last decade, the importance of innovation has largely enhanced, and it has become an important contributor to competitive success. This is because the added value of existing products and services is diminishing as a result of rapidly changing technologies and extreme global competition (Gunday, Ulusoy, Kilic, and Alpkan, 2011). Hence, innovation has turned into a hot topic for academia and industrial research for facilitating women-led businesses to overcome the challenges they encounter while striving to achieve sustainable competitive advantage.

In the 21st century, more attention is given to the subject of women's entrepreneurship through establishing MSEs. Extensive evidence shows that the performance of women-led MSEs plays a pivotal role in the development of a nation (Shakeel, Yaokuang & Gohar, 2020). MSEs have also been acknowledged all over the world as a key factor for sustainable development (Alene, 2020; Benjo and Mwasiaji, 2023). They are more common in Sub-Saharan Africa (SSA) where

entrepreneurship is the primary engine for income generation and poverty reduction (Mozumdar, Velde, and Omta, 2020). In less developed countries like Tanzania, women-led MSEs are consequential because they are the stimulant of income-generating activities, and job creation, accounting for about sixty percent of employment (U.N Women 2020; Sahi, Modi & Mantok, 2019; Shakeel et al., 2020; Lipovka, 2021).

This study was guided by the Schumpeter's new combination theory, which suggests that innovation helps the process of development of the economy through entrepreneurship and business development by the introduction of new products with which consumers are not yet familiar (Schumpeter, 1934). The theory proposes that businesses can generate prospects for new returns with their innovations to fill the gaps in the marketplace (Upadhyay, 2018; Lundvall, 2014; Pfarrer & Smith, 2015). Accordingly, the causative factor in change is innovation, which is defined as doing things differently in the realm of economic life (Upadhyay, 2018). Furthermore, innovation is a unique tool of the entrepreneur: enterprise owners seize the opportunities presented by shifts in the marketplace. Then, women-led entrepreneurs must actively seek out new ideas, identify the conditions that are favourable to innovation, and understand the rules by which to play the innovation game. The Schumpeterian growth proposition, therefore, implies that discoveries made by for-profit businesses are what ultimately lead to technological progress. Hence, the purpose of product innovation is to provide women-led MSEs with a leg up on the competition in the marketplace.

Product innovation is a significant improvement in technical specifications, components, and materials, incorporated software, user-friendliness, or other functional characteristics (Kiveu, Namusonge, and Muathe, 2019). It includes the addition of new functions or improvements to existing functions. According to Karabulut (2017) and Nataya and Sutanto (2018), a new product can be developed by either restructuring existing technologies or using radical technologies. It is essential to women-led business performance because it plays a significant role in attracting new customers, promising superior products, expanding market segments, and increasing product lines (Ramadani et al., 2019). The new look of the product attracts customers and eventually increases sales (Agustia et al., 2022). Product innovation in terms of new product content and product design plays a significant role in fostering business performance (Kiveu et al., 2019).

Ramadan et al. (2019) defined business performance as the outcome of firm's ability to innovate. Likewise, researchers such as Gundry, Iakovleva and Carsrud (2014) and Lee, Lee and Garrett (2019) defined business performance as the attainment of internal and external objectives of the company, including competitiveness, profitability and cash flow.

Several studies have been conducted to examine the nature of the relationship between product innovation practices and the performance of MSEs (Aksoy, 2017; Kijkasiwat, 2020; Nair, 2020; Kaur, 2023; Mwaifyusi & Dau, 2023). Some of these studies have concluded that product innovation is crucial in today's business climate due to the high level of market competition (Agarwal, 2019; Sahi et al., 2019; Kuguru, Jansson & Nganga, 2022). Some studies have also observed that many women business owners compete in low-value sectors such as food processing with low entry barriers, which are already highly competitive and provide limited room for growth (Nkwabi, Mboya, Nkwabi & Nkwabi, 2019; Huang et al., 2022). This implies that MSEs managed by women have almost no chance of success unless they innovate by creating new products and entering new markets. Atalay, Anafarta and Sarvan (2013) found that product innovation had a positive and significant impact on the company's success. These studies have shown innovation to have a positive relationship with the success of small enterprises, with the launch of new products having the most impact. This indicates that women-led MSE businesses may improve their performance by emphasizing the launch of new and improved products, and adopting other product innovation initiatives.

Innovative performance has been indicated as a catalyst combination of the results of technical and management innovations, contributing positively to organizational performance. For example, Choi (2014) showed that organizations can cope with environmental challenges by positively integrating technical and management adjustments into their organizational structures to improve their success. Innovative performance is associated with achievements in cost efficiency, product quality, flexibility, production speed, and growth of sales, thus effectiveness and efficiency finally lead to performance. Gunday et al. (2011) highlighted that innovative performance exerts positive effects on enterprise performance. It is the outcome of quality increase, time for production, quantity, and technical know-how. It furthermore affects market sales and promotion thereby increasing financial performance in terms of profit increase, return

on sales, and customer satisfaction. Choi (2014) suggests that innovative performance is also associated with non-financial aspects of corporate performance. Moreover, innovative performance increases customer satisfaction and production speed, which leads to higher financial returns. In brief, once innovative performance improves, production and marketing performance will also improve, and through their mediation, financial performance will start to improve.

Despite the increasing interest in product innovation both in academia and the entrepreneurship industry, there is limited evidence in the literature that shows the association of product innovation and business performance, particularly women-led MSEs in the food processing industry (Aziz and Samad, 2016; Chen et al., 2020; Benjo and Mwasiagi, 2023). In contrast, literature is rich in large companies that are mostly dominated by men (Karabulut, 2015). Therefore, this study explores the effect of product innovation on the performance of women-led MSEs in food processing industry in Tanzania.

1.2 Conceptual framework

Drawing from Schumpeter's new combination theory of innovation and Entrepreneurship, and the literature reviewed above regarding product innovation and entrepreneurship performance, the conceptual framework of the study is presented below:

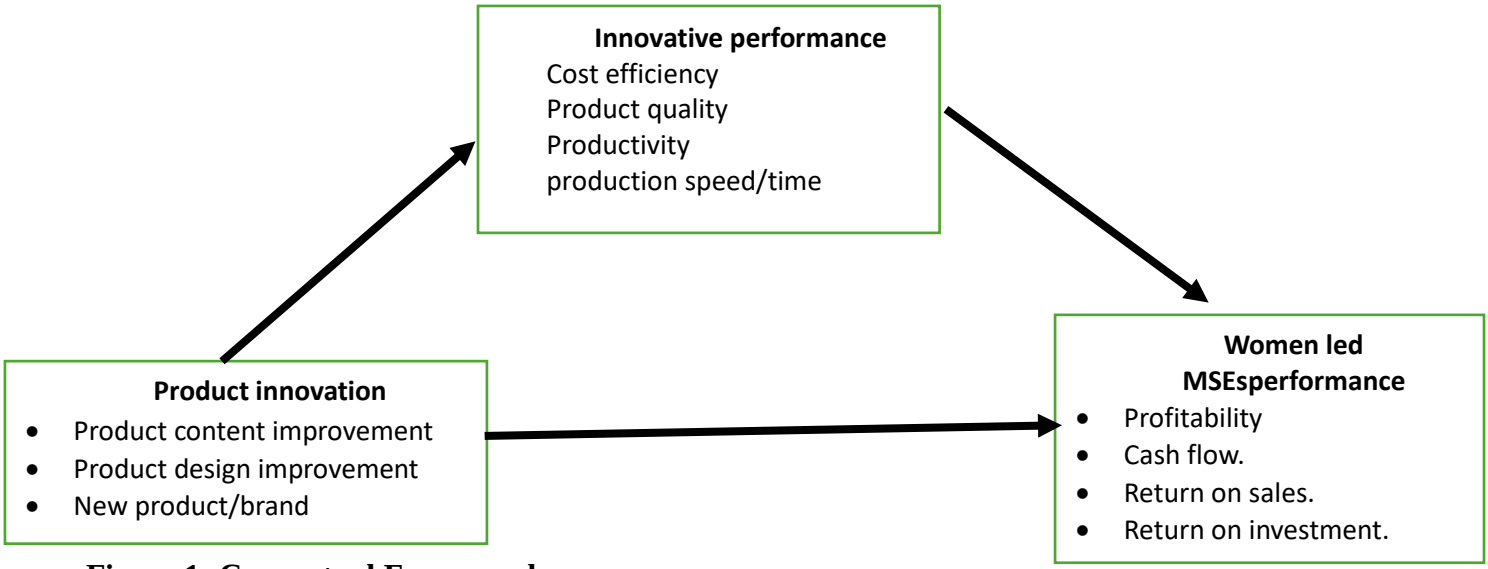

Figure 1: Conceptual Framework

Source: Gunday et al. (2014), Mendoza-Silva (2020)

1.3 Hypotheses

Given the above research model, the current study sought to test the following hypotheses:

H1: Product innovation has a significant positive effect on the performance of women-led Micro and Small Enterprises in the food processing industry.

H2: Innovative performance mediates the relationship between product innovation and performance of women-led Micro and Small Enterprises in the food processing industry.

Following this introduction, the rest of the paper is organized in such a way that section 2 describes the methods and materials used to collect and analyze the collected data, and section 3 presents the findings. Discussion of findings follows section 4, and section 5 concludes the study.

2.0 MATERIALS AND METHODS

This study was conducted in four purposively selected SIDO regional offices, namely Dar es Salaam, Arusha, Morogoro and Dodoma. The selected regions have a significant number of women-led food-processing MSEs; hence, they were likely to innovate to improve performance. Using a cross-sectional design, data were collected at a single point in time. The chosen design allows qualitative and quantitative data collection from a larger sample at a time. Using stratified sampling technique, 297 women-led food processing MSEs were selected from Dar es Salaam (98), Arusha (96), Morogoro (55), and Dodoma (48). The population was grouped into strata based on the kinds of food products such as honey, nuts, flour, meat and fish, food spices, snacks, fruits and juice, edible seed oil, and milk products. Then, samples were randomly selected from each strata. Furthermore, seven women entrepreneurs were purposively selected from each region for focus group discussions (FGDs), and one SIDO officer was also purposively selected from each region as a key informant to provide exhaustively detailed information about the problem.

Data were collected through structured interviews, focus group discussions and key informant interviews. Structured interviews were used to collect quantitative data from 297 women-led

food processing MSEs using a structured questionnaire. The structured interviews involved face-to-face administration of a structured questionnaire. The questionnaire was designed to gather information on product, process, marketing and management innovations. In each region, one FGD was conducted with a group of seven women entrepreneurs to gather detailed qualitative data on product, process, marketing and management innovations using a checklist with discussion topics. Data from the FGDs were collected through note taking, audio recording, and picture taking. Additionally, in-depth interviews were conducted with one SIDO Officer in each region to solicit information on the services provided by SIDO to food processing women entrepreneurs.

Data processing involved data cleaning, transcription, and coding to ensure proper data management. Smart PLS Version 3 Software was used to analyze quantitative data as it supports measurement of direct and indirect effects (Hair et al., 2017; Ramayah et al., 2018). A five-point Likert scale was used to measure the study variables that included product innovation, innovative performance, and performance of women-led MSEs. A partial Least Square Structural equation modeling (PLS-SEM) was used to test and estimate causal relations among latent constructs. The PLS-SEM method was preferred to other models because it captures both direct and indirect effects (Memon et al., 2018). This model can also estimate the bootstrap confidence interval for models with indirect effects and estimate the causal relations among latent constructs. A measurement model was conducted for quality checks for the validity and reliability of the collected data by performing data modifications in the PLS Algorithm. Then, a structural model was conducted to test the hypothesis by running the Bootstrap method of bias correction to measure the relationship between product innovation and performance of women-led MSEs. Qualitative data were subjected to content analysis while trustworthiness and credibility of the findings were attained through triangulation of data collection tools and quotations from the informants.

3.0 RESULTS

3.1 Model formation

A path mediation analysis was performed to explore the impact of product innovation on women entrepreneurs' performance through innovative performance (Ramayah et al., 2022; Memon et

al., 2018). This allowed the authors to mediate the direct and indirect effects of product innovation on the performance of women entrepreneurs through innovative performance. The model is summarized as follows; $Y=\beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3\text{……...}+\beta nXn+\varepsilon$

$WEP=\beta_0+\beta_1 IP+\varepsilon$ (i)

$IP=\beta_0+\beta_1PDI+\varepsilon_2$ (ii)

$IP=\beta_0IP+\beta 1PDI+\varepsilon IP$ (iii)

$WEP=\beta_0WEP+\beta_1PDI+\beta_1IP+\varepsilon WEP$ (iv)

WEP= Latent endogenous variable (performance of women entrepreneurs)

IP= Latent endogenous Variable (innovative performance)

PDI= Latent exogenous variable (product innovation)

β_0=intercept

β_1-β_n= Coefficients of determination for independent variables

ε= Error term

3.2 Measurement model assessment

The measurement model test was conducted by running the PLS Algorithm in Smart PLS Software. The model examines the quality criteria of the data, including the validity and reliability of the data measured by factor loading, Cronbach's alpha, composite reliability, and Average Variance Extracted. The results of the structural model test are summarized in Figure 2.

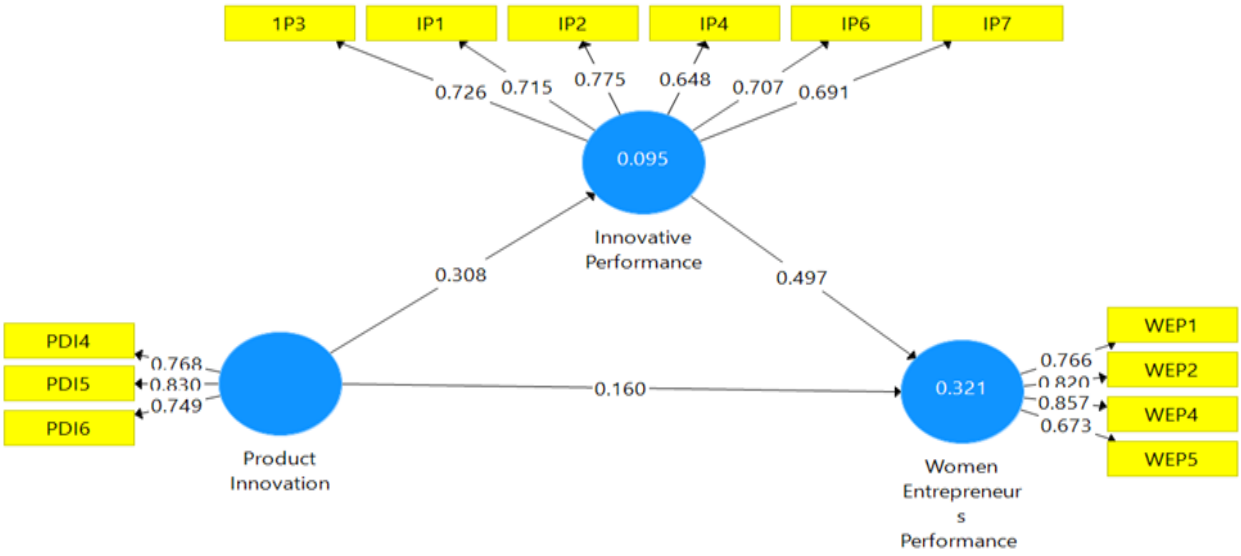

Figure 2: Results of Measurement Model

3.2.1 Factor loading

Factor loading is a technique in which a researcher examines various items to identify factors that have high loadings on the same construct and those that have high loadings on multiple constructs (Hair, Ringle & Sarstedt, 2011). According to Hair et al. (2017), factor-loading estimates should be ≥ 0.70. On the other hand, researchers should omit formative indicators when the outer loading is <0.7 and not significant as they do not have any effect on the latent variables (Ramayah et al., 2018).

In regard to product innovation, the results indicate that all the modified factor loadings were higher than the threshold level (>0.7), including (PDI4=0.768, PDI5=0.830, and PDI6 =0.749). The study dropped five indicators (PDI1=O.204, PDI2=0.438, PDI3=0.573, PDI7=0.596, and PDI8=0.406) because their factor loadings were below the threshold level (<0.7) and not significant, as they did not have any effect on the latent variable. Regarding innovative performance, the results showed that all the modified factor loadings were higher than the threshold level (>0.7), including IP1=0.726, IP2=0.715, IP3=0.773, IP4=0.702, IP6=0.707, and IP7=0.701. The study omitted three indicators (IP5=0.623, IP8=0.503, IP9=0.585) because their factor loadings were below the threshold level (<0.5) and not significant as they did not have any

effect on the latent variable. As regards the performance of women entrepreneurs, the result showed that all the modified factor loadings were higher than the threshold level (>0.7), including WEP1=0.766, WEP2=0.820, WEP4=0.857, and WEP5=0.700. The study dropped one indicator (WEP3=0.639) because its factor loadings were below the threshold level (<0.5), and thus not significant as it did not have any effect on the latent variables.

3.2.2 Composite Reliability

Composite Reliability of an indicator is a measure of the dependability of a composite scale to evaluate a single underlying construct with a value <0.7. Accordingly, the higher the value, the higher the dependability of the indicator on the latent variable (Hair et al., 2022). The results indicated that the composite reliability value of product innovation (0.827), innovative performance (0.818), and performance of women entrepreneurs (0.862) fell above the threshold level (>0.7), implying that the construct had an acceptable level of item-dependability.

3.2.3 Average Variance Extracted

The Average Variance Extracted (AVE) calculates the grand mean value of the squared loadings of the indicators. It is a measure of the amount of variance captured by a construct in relation to the amount of variance due to the measurement error. The normal acceptable limit of the value of average variance extracted must be >0.5 (Hair et al., 2017). The result showed the AVE of product innovation (0.614), innovative performance (0.512), and performance of women entrepreneurs (0.611), indicating that an average construct explained over 50% of the variance of its items of the latent variables. Consequently, the modified indicators were valid and reliable for measuring the latent variables. Therefore, according to the results, the modified indicators of the latent variables including product innovation, innovative performance, and the performance of women entrepreneurs were valid and reliable for measuring the relationship. Table 1 depicts the cross loading, Cronbach's Alpha, composite reliability, and AVE.

Table 1 Cross loading, Cronbach's Alpha, Composite Reliability and Average Variance Extracted

Latent variables	Indicators	Factor loadings	Composite Reliability	Average Variance Extracted	Explanation
Product innovation	PDI4	0.768	0.827	0.614	Valid and reliable
	PDI5	0.830			
	PDI6	0.749			
Innovative performance	IP1	0.726	0.818	0.512	Valid and reliable
	IP2	0.715			
	IP3	0.775			
	IP4	0.702			
	IP6	0.700			
	IP7	0.704			
Performance of Women-led MSEs	WEP1	0.766	0.862	0.611	Valid and reliable
	WEP2	0.820			
	WEP4	0.857			
	WEP5	0.700			

Note: Cross-loading ≤ 0.7 (Hair et al., 2017), Cronbach Alpha ≤ 0.7 (Ramayah et al., 2017) AVE < 0.5; (Hair, Ringle, & Sarstedt, 2011) composite reliability ≤ 0.7. (Ramayah et al., 2017). PDI= product innovation; IP = innovative performance; WEP= Performance of women-led enterprise.

3.2.4 Correlation analysis

Discriminant validity was assessed to determine whether there was inter-correlation between the independent, mediating and dependent variables. Discriminant validity was established by the Fornell and Larcker criterion. The criterion proposes that the square root of AVE for a construct should be higher than its correlations with the other constructs in the study; and that the maximum shared variance should be lower than AVE (Hamid, Sami & Sidek, 2017).

Results in Table 2 show that innovative performance was significantly and positively correlated with product innovation (r=0.308, p=0.01), and performance of women entrepreneurs (r=0. 546 p=0.01). Furthermore, Product Innovation was significantly and positively correlated with performance of women led MSE (r=0.313, p=0.01). However, the performance of women led MSEs did not correlate with any variable, as its effect depended on other variables, and it was not a causal construct.

These results indicate that the correlation coefficients of each latent variable were less than the square root of the consistent AVE, which means that the latent variables were suggestively correlated and differentiated from each other. Therefore, the discriminant validity of the scale data was established as indicated in Table 2. Thus, the performance of women-led MSEs is strongly correlated with product innovation and mediated by innovative performance.

Table 2: Results of Coefficients of Correlation (Fornell-Larcker Criterion)

	Innovative Performance	Product Innovation	Women Entrepreneurs Performance
Innovative Performance	**0.712**		
Product Innovation	0.308*	**0.783**	
Women led MSEs Performance	0.546*	0.313*	**0.782**

N = 297; **p < 0.01; *p < 0.05 (Two-tailed test). Bold numbers are the square root of the AVE of each construct. Off diagonals are Pearson correlation of constructs.

3.3 Structural Model Assessment

Following the assessment of the measurement model which measures the reliability and validity of data, this step evaluates the structural path for the evaluation of the relationship between the study constructs and their statistical significance. Bootstrapping was performed to examine the final results, including the path coefficients, mediation effects, and total effects. Figure 3 is illustrative.

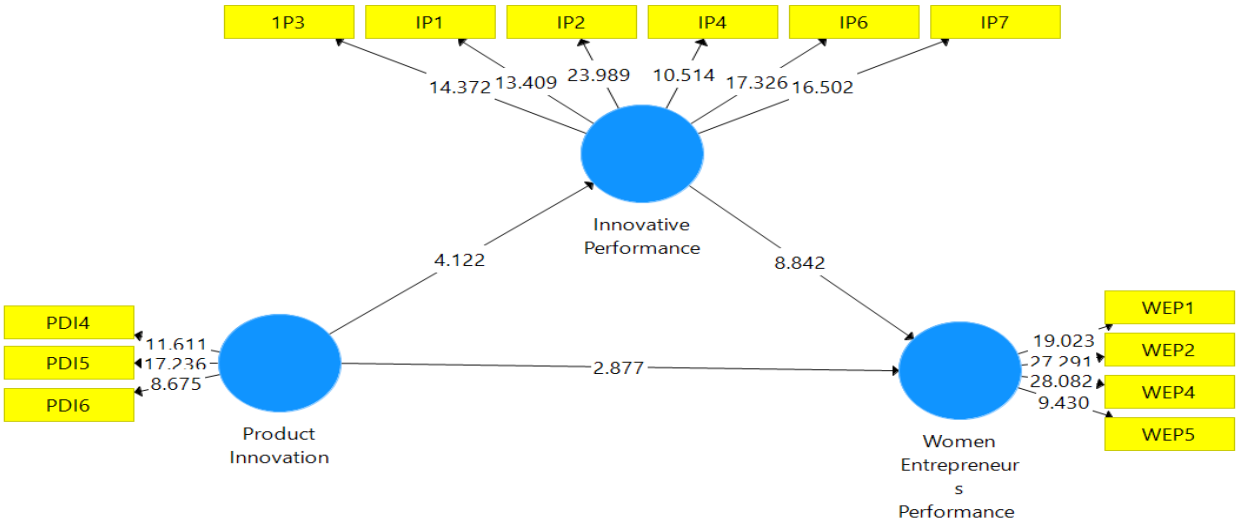

Figure 3: Structural Model results.

3.3.1 Path coefficients

Path coefficient analysis was used to examine the significance of direct relationships of latent variables in the model (Memon et al., 2018). For the path to be significant, the study generated 300 resamples and 95% confidence intervals at t value> 1.96 (Bollen & Pearl, 2013). A confidence interval at p=000 indicates a significant relationship. The results of the path coefficients reveal that innovation performance has a significant effect on women entrepreneurs' performance (t=8.842, p=0.000), product innovation has a significant effect on innovative performance (t=4.122, p=0.000), and product innovation has a significant effect on women entrepreneurs' performance (t=2.87, p=0.004). Table 3 presents the path coefficient of the structural model.

Table 3: Results of Path Coefficients

Path	Original Sample (β)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
IP -> WEP	0.497	0.498	0.056	8.842	0.000
PDI -> IP	0.308	0.313	0.075	4.122	0.000
PDI -> WEP	0.160	0.164	0.056	2.877	0.004

Relationships were significant at p≤0.000, t≥=1.96, confidence level p=0.05, two-tailed test Note: P=Probability value, β=better coefficients, PDI=Product innovation, IP=Innovative performance, WEP= Performance of women-led MSEs.

3.3.2 Hypothesis testing

Mediation analysis was conducted to examine the effects of product innovation on the performance of women entrepreneurs. For the path to be significant, the study generated 300 resamples and 95% confidence intervals at t value> 1.96 (Bollen & Pearl, 2013). A confidence interval at p=000 indicates a significant relationship as indicated in Table 4.

Table 4: Results of Hypothesis Testing

	Path relationship	Original Sample (β)	Sample Mean (M)	Standard Deviation (STDEV)	T Value	P Value	Decision
H_1	PDI -> WEP	0.281	0.283	0.066	4.261	**0.000**	***H_1; Supported***
H_2	PDI ->IP -> WEP	0.060	0.060	0.033	1.981	**0.006**	***H_2; Supported***

Relationships are significant at p≤0.001, t≥=1.96, confidence level p=0.05, two-tailed test Note: P=Probability value, β=better coefficients, PDI=Product innovation, IP=Innovative performance, WEP= Performance of women-led MSEs.

The results revealed that product innovation had a significant positive effect on the performance of women entrepreneurs (β=0.281, t=4.261, p=0.000); hence, ***H1*** was accepted. The indirect effect of product innovation on the performance of women entrepreneurs through innovative performance was also found to be significant (β=0.060, t=1.981, p=0.006); therefore, ***H2*** was also accepted. This shows that the relationship between product innovation and performance of women entrepreneurs was fully mediated by innovation performance.

In addition, during Focus Group Discussions, women entrepreneurs provided different views on how product innovation practices affect their entrepreneurial performance. Regarding product content improvement, women entrepreneurs in food processing MSEs explained that they innovate their products by adding new ingredients to food products. The participants mentioned different kinds of ingredients such as colours, salts, sugars, fruit and flavors. In this regard, one of the participating women entrepreneurs had the following to share:

> *I started by producing plain white yogurt and selling it exclusively to my neighbors from home. However, as demand grew, I expanded my offerings by introducing coloured variations and fruit-flavoured options. Presently, my product line includes white yogurt, flavoured yogurt, and cheese, although the demand for cheese remains limited. Over time, the number of customers has increased, leading to a noticeable increase in sales. (FGD Dodoma, Women Entrepreneur B, February 28, 2023).*

Parallel to that, women processors mentioned improvement of product design as a product innovation practice by changing the appearance of food product to attract customers. This includes the use of new packaging materials, new product shapes, and new volumes to increase the number of customers because the product can be sold to customers with both low, smaller and high purchasing power. Most products with small volumes, particularly those consumed by people daily such as maize flour, food spices, beans, peanut butter, and honey, are sold more frequently than those with large volumes, ultimately increasing customer satisfaction and

delivery speed. When asked how different kinds of volumes and shapes affect entrepreneurial performance, one of the women processing nutritional flour replied:

> *Products packaged in small quantities tend to sell more frequently, particularly in Tanzania, where many individuals have little daily income. With a significant portion of the population relying on daily earnings rather than monthly salaries, they often expect to purchase goods based on their daily earnings. In response to this dynamic demand, I began distributing nutritional porridge flour directly to people's homes. Initially, I offered packaging options of one and two kilograms, with the one-kilogram option proving to be the more popular choice. Surprisingly, after introducing a half-kilogram option, it became the most selling quantity. Now, I am considering packaging quarter a kilogram to further cater for potential customer preferences. (FGD Arusha, Women Entrepreneur A, April 12, 2023).*

Furthermore, a woman processing fruits and juice in Ilala Market in Dar es Salaam added a different idea to new and improved packaging, stating that:

> *The packaging of food products does not have an impact on entrepreneurship performance in this market, as consumers prioritize quality and price over packaging aesthetics. In our case, we pack our juice in used water bottles, and despite customers being aware of this fact, they do not question our choice of packaging. Instead, they focus on the quality and affordability of the product. (FGD Dar es Salaam, Women Entrepreneur C, April 29, 2023).*

The development of new products with components and materials different from the old ones was revealed as one of the product innovations practiced by women entrepreneurs. Many women in small and micro enterprises process different types of food products at the same time. A woman processing different kinds of food spices explained that:

> *I started food processing by producing tea masala, gradually expanding my range to include pilau masala. Over time, I diversified further by introducing meat and sauce masala, as well as ginger, bilimbi, and pepper. I market my products by personally walking around the city and selling to customers in offices and households. With each new product added to my inventory, I've witnessed an increase in sales. (FGD Dodoma, Women Entrepreneur F, February 28, 2023)*

Parallel to the development of new products, women entrepreneurs mentioned launching a new brand (product label/logo) of products as an innovation practice that influences performance. A woman processing gourd product said:

> *Products with labels promote entrepreneurship, as they not only display the name of the food processor but also include contact information such as phone numbers. When customers find the products appealing, they often reach out to place orders using the contact details provided on the label. The direct communication channel not only fosters customer engagement but also leads to increased sales. I receive numerous orders by phone, and many customers contact me using the phone number on the label. (FGD Morogoro, Women Entrepreneur D, March 19, 2023).*

Following the FGD, we conducted a structured interview with SIDO officers to find out the spectrum of services offered to women entrepreneurs in food processing. According to the SIDO officer at the Dar es Salaam Headquarters:

> *SIDO extends loans to women entrepreneurs to fuel business development and innovation. However, many encounter obstacles in borrowing due to lacking the necessary criteria and collateral, typically non-movable assets like plots or houses. Obtaining spousal consent for collateral use proves challenging for women. Additionally, SIDO offers loans for acquiring processing equipment, with a 25% upfront payment and subsequent monthly installments. Despite these opportunities, female participation remains low. Notably, SIDO conducts biannual training sessions for women entrepreneurs in food processing, enhancing operational efficiency. Furthermore, the organization offers tailored advisory services for the food processing industry (Interview, Dar es Salaam, SIDO officer, April 30, 2023).*

Based on the study findings, it could be said that product innovation is an important factor influencing women's entrepreneurial performance. The study established a positive relationship between product innovation, and performance of women-owned Micro and Small Enterprises in Tanzania. Therefore, the position taken by the study is that effective operationalization of

product innovations results in better performance using financial and non-financial measurement parameters.

4.0 DISCUSSION

The findings have indicated that the relationship between product innovation and performance of women-led MSEs is significant with T statistics t=4.261. The original sample estimate value was positive (β=0.281), which indicates that the relationship between product innovation and the performance of women-led MSEs in the food processing industry is positive at p= 0.000; hence, **H1** is supported**.** This implies that improvement in one unit of the aspects related to product innovation improves the performance of women-led MSEs by 0.281 units. Therefore, product innovation has a positive and significant effect on the performance of women-led MSEs in the food processing industry. Thus, it can be concluded that the higher the product innovation, the higher the performance of women-led food processing MSEs.

The indirect effect of product innovation on the performance of women entrepreneurs through innovative performance was also found to be significant (t=1.981, p=0.006); thus, **H2** was also accepted. The original sample of innovative performance is positive (β=0.006), indicating that the relationship between product innovation and performance of women-led MSEs is mediated by innovative performance. Thus, the relationship between product innovation and performance of women-led MSEs is completely mediated by innovation performance.

The results indicate that product innovation, including improvement of product content product design, and development of new products or brands influence entrepreneurial profitability, cash flow, and return on sales. The development of new and attractive food products with new technologies also increased the quality of products thereby attracting new customers. Adding new flavour ingredients and tastes to food products also directly increase sales and increase customers.

The findings of the present study are consistent with Hrivnák (2022), who found that product innovativeness (new and significantly improved products) influences performance. Specifically, it was found that 35% of small-scale enterprises introduced new products and services. In addition, the study indicates the importance of product innovation as a marketing strategy tool to

improve enterprise sales and competitiveness through a bypass attack strategy in which the competitor is simply passed, thus improving performance for sustainable business growth.

The results of the present study are also in line with Benjo and Mwasiaji (2023), who found a positive relationship between product innovation and the performance of women-led small and medium enterprises. The study indicates that 60% of women entrepreneurs agreed that new products and services had beneficial effects on customer attraction and operational efficiency in small and micro businesses. This indicates that product innovation practices have a substantial impact on the performance of women-owned enterprises. Moreover, the study findings corroborate those of Gunday et al. (2011), who discovered a positive and strong relationship between product innovation and profitability of small and medium-sized enterprises.

Furthermore, the study is parallel with Agustia et al. (2022), who examined product innovation and firm performance. The results also indicated that product innovation significantly affects firm performance. The study findings are also consistent with those of Hamid and Mohammad (2012), which indicated that product innovation increases productivity and speeds the criteria for performance evaluation. The study suggests that new and improved products increase customer satisfaction and sales, and ultimately increase financial performance.

Moreover, Somalua and Siregar (2022) and Anwar (2018) showed that innovation performance influences enterprise performance, and the current study suggests that this is equally applicable in the context of women-owned enterprises. The results of the study are also in line with those of Kuguru et al. (2022), which indicated that development of new products and services is essential for improvement of performance of coffee cooperatives. Thus, improving existing products and developing new ones are important ways to initiate product innovation. Since product innovation involves a wide range of developments - from the content of the product to the way the product is delivered to the customer, technical specifications play a vital role in advancements.

5.0 CONCLUSION

Based on the findings, the study concludes that implementation of product innovations increases the performance of women-led MSEs in the food processing industry. Although product

innovation had a positive significant effect on the performance of women-led entrepreneurs, their contribution was low. This indicates that other factors also contribute to their performance. From the literature reviewed, such factors include education level, access to credit, business experience, market linkage, access to finance, training and market as well as legal and government barriers. Other factors are access to networks, lack of infrastructure, and cultural factors. Moreover, the ability of women-led entrepreneurs to compete is also affected by external environment, including market conditions, economic conditions, and legal environment. To improve firm competitiveness, innovation should thus be coupled with conducive and supporting internal and external environments.

REFERENCES

Agarwal, J. (2019). Women entrepreneurship and innovations: Evidence from India. *The International Journal Research Publications RJSSM,* 8(10), pp.64-68.

Agustia, D., Haryanto, S. D., Permatasari, Y. & Midiantari, P. N. (2022). Product innovation, firm performance, and moderating role of technology capabilities. *Asian Journal of Accounting Research,* 7(3), 252-265

Anwar, M. (2018). Business Model Innovation and SMEs Performance-Does Competitive Advantage Mediate? *International Journal of Innovation Management,* 22-35.

Aksoy, H. (2017). How do innovation culture, marketing innovation, and product innovation affect the market performance of small and medium-sized enterprises (SMEs)? *Technology in Society,* 51(4), 133-141.

Alene, E. T. (2020). Determinants that influence the performance of women entrepreneurs in micro and small enterprises in Ethiopia. *Journal of Innovation and Entrepreneurship,* 9(1), 1-20.

Atalay, M., Anafarta, N. and Sarvan, F. (2013). 'The relationship between innovation and firm performance: empirical evidence from Turkish automotive supplier industry, Procedia: *Social and Behavioral Sciences,* Vol. 75, pp.226–235.

Aziz, N. and Samad, S. (2016) 'Innovation and competitive advantage: moderating effects of firm age in foods manufacturing SMEs in Malaysia', *Procedia Economics and Finance,* Vol 35, pp.256–266.

Benjo, J. & Mwasiaji, E. (2023). Innovation practices in women-owned small and medium business enterprises in Bomet County, Kenya. International Academic Journal of Innovation, *Leadership and Entrepreneurship,* 2(4), 28-51.

Bollen, K. A. Pearl, J. (2013). Eight myths about causality and structural equation models. In Handbook of causal analysis for social research (pp. 301-328). Dordrecht: Springer Netherlands.

Chen, Q., Wang, C.H. and Huang, S.Z. (2020). Effects of Organizational Innovation and technological innovation capabilities on firm performance: evidence from firms in China's Pearl River Delta. *Asia Pacific Business Review*, 26(1), pp.72-96.

Choi, S., Jang, H. and Hyun, J. (2010). Corrigendum: Correlation between innovation and performance of construction firms. *Canadian Journal of Civil Engineering,* 37(1), pp.146-146.

Gault, F. (2018). Defining and measuring innovation in all sectors of the economy. *ResearchPolicy,* 47(3), 617-622. OECD

Gundry, L.K., Kickul, J.R., Iakovleva, T. and Carsrud, A.L. (2014). Women-owned family businesses in transitional economies: key influences on firm innovativeness and sustainability. *Journal of Innovation and Entrepreneurship*, 3(1), pp.1-17.

Gunday, G., Ulusoy, G., Kilic, K., & Alpkan, L. (2011). Effects of innovation types on firm performance. *International Journal of Production Economics,* 133(2), 662-676.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2017). Multivariate data analysis: A global perspective. Pearson Education

Hair, J. & Alamer, A. (2022). Partial Least Squares Structural Equation Modeling (PLS-SEM) in second language and education research: Guidelines using an applied example. *Research Methods in Applied Linguistics,* 1(3), 100027.

Hair, J. F., Ringle, C. M. & Sarstedt, M. (2011). PLS-SEM: Indeed, a silver bullet. *Journal ofMarketing theory and Practice*, 19(2), 139-152.

Hamid, M. R., Sami, W., & Sidek, M. M. (2017). Discriminant validity assessment: Use of Fornell & Larcker criterion versus HTMT criterion. In *Journal of Physics: Conference Series*, Vol. 890, No. 1, p. 012163. IOP Publishing.

Hrivnák, M. (2022). Emergence of Product and Service Innovations of Different Level of Novelty in Knowledge Intensive SMEs: The Role of Open Innovation Patterns. *Quality Innovation Prosperity*, 26(3), 168-189.

Huang, Y., Li, P., Wang, J. and Li, K. (2022). Innovativeness and entrepreneurial performance of female entrepreneurs. *Journal of Innovation & Knowledge*, 7(4), p.100257.

Karabulut, A. T. (2015). Effects of innovation types on performance of manufacturing firms in Turkey. *Procedia-Social and Behavioral Sciences*, 195, 1355-1364.

Kaur, G., Modi, P., & Mantok, S. (2023). New product innovations in times of crisis: How did women entrepreneurs survive the COVID-19 crisis? Industrial Marketing Management.

Kijkasiwat, P., & Phuensane, P. (2020). Innovation and firm performance: The moderating and mediating roles of firm size and small and medium enterprise finance. *Journal of Risk and Financial Management*, 13(5), 97.

Kiveu, M. N., Namusonge, M. & Muathe, S. (2019). Effect of innovation on firm competitiveness: the case of manufacturing SMEs in Nairobi County, Kenya. *International Journal of Business Innovation and Research*, 18(3), 307-327.

Kuguru, P., Jansson, J. E., & Nganga, K. (2022). Influence of product innovation on the performance of coffee cooperatives in Kenya. *European Journal of Business and Strategic Management*, 7(2), 61-71.

Lee, R., Lee, J. H., and Garrett, T. C. (2019). Synergy effects of innovation on firm performance. *Journal of Business Research*, 99, 507-515.

Lipovka, A., Islamgaleyev, A., & Badjanova, J. (2021). Innovation capability of women and men managers: Evidence from Kazakhstan. *Access to science, business, innovation in digital economy*, 2, 91-102.

Lundvall, B.Å. (2008). Innovation system research: where it came from and where it might go. Georgia Institute of Technology.

Memon, M. A., Jun, H. C., Ting, H., & Francis, C. W. (2018). Mediation analysis issues and recommendations. *Journal of applied structural equation modeling*, 2(1), i-ix.

Mozumdar, L., Van Der Velde, G., & Omta, S. W. F. (2020). Determinants of the business performance of women entrepreneurs in the developing world context. MDPI, J *Multidisciplinary Scientific Journal,* 3, 215–235.

Mwaifyusi H., & Dau., K. (2023). Effects of Innovation on Business Performance: Empirical Evidence from Manufacturing Firms in Tanzania, *African journal of accounting and social science studies,* 237-257.

Nair, S. R. (2020). The link between women entrepreneurship, innovation, and stakeholder engagement: A review. *Journal of Business Research*, 119, 283-290.

Nataya, A. and Sutanto, J. E. (2018). The Effect of Product Innovation and Service Innovation towards Marketing Performance: Case Study on Plastic Producer in Surabaya. *International Journal of Business and Management Invention* (IJBMI), 7(8), 61-66.

Nkwabi, J., Mboya, L., Nkwabi, J., & Nkwabi, J. (2019). A review of the challenges affecting the agro-processing sector in Tanzania. *Asian Journal of Sustainable Business Research*, 1(2), 8-77.

Pfarrer, M.D. and Smith, K.G., 2015. Creative destruction. Wiley Encyclopedia of management, pp.1-3.

Ramadani, V., Hisrich, R. D., Abazi-Alili, H., Dana, L. P., Panthi, L., and AbaziBexheti, L. (2019). Product innovation and firm performance in transition economies: A multi-stage estimation approach. *Technological Forecasting and Social Change*, 140, 271-280.

Ramayah, T. J. F. H., Jacky Cheah, Francis Chuah, Hiram Ting, and Mumtaz Ali Memon (2018). "Partial least squares structural equation modeling (PLS-SEM) using smartPLS 3.0." An update guide and practical guide to statistical analysis (2018).

Sahi, G. K., Modi, P., & Mantok, S. (2023). New product innovations in times of crisis: How did

Do women entrepreneurs survive the COVID-19 crisis? *Industrial Marketing Management,* 19-29.

Rungtusanatham, M., Miller, J. W., & Boyer, K. K. (2014). Theorizing, testing, and concluding for mediation in SCM research: Tutorial and procedural recommendations. *Journal of Operations Management,* 32(3), 99-113.

Shakeel, M., Yaokuang, L., & Gohar, A. (2020). Identifying the Entrepreneurial Success Factors and the performance of women-owned businesses in Pakistan: The moderating role of national culture. Sage Open, 10(2), 2158244020919520.

Schumpeter, J. (1934). The theory of economic development (Harvard University Press, Cambridge, MA).

Somalua, R., & Siregar, R. (2022). The Effect of Product Quality and Product Innovation on Consumer Loyalty in Fizzul Putra Mandiri Convection, Jombang Regency. *Journal of management, accounting, general finance, and international economic issues*, 1(2), 43-52.

Upadhyay, K. (2013). Schumpeter's view on innovation and entrepreneurship (ed.) University of Zilina & Institute of Management by University of Zilina.

Upadhyay, C.S. and Rawal, P. (2018). A Critical Study of Joseph A. Schumpeter's Innovation Theory of Entrepreneurship. *International Journal of Creative Research Thoughts*, 6(1), pp.1678-1687.

U.N. Women. (2020). COVID-19 and its economic toll on women: The story behind the numbers.