

Unlocking Business Competitiveness: The Role of Entrepreneurial Skills, CRM, and Product Diversification in Coastal Areas

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ABSTRACT

Objectives: This study explores the determinants of Business Competitiveness (BC) among female entrepreneurs in coastal areas by examining the influence of Entrepreneurial Skills (ES), Customer Relationship Management (CRM), and Product Diversification (PD). The research also identifies structural challenges including limited market access, technological constraints, and reliance on seasonal or resource-dependent industries.

Methodology: The study adopts a quantitative approach using Structural Equation Modelling–Partial Least Squares (SEM-PLS) to analyse the relationships between ES, CRM, PD, and BC. The analysis includes coefficients and p-values to validate the significance of each relationship. Data were gathered from 120 female entrepreneurs in coastal regions using structured questionnaires that captured responses related to each construct. The model also includes an assessment of the mediating effect of PD on the relationship between ES, CRM, and BC.

Finding: The findings indicate that both ES and CRM positively and significantly affect BC, both directly and through the mediating influence of PD. ES enhances adaptive decision-making and market-oriented innovation, while CRM strengthens customer relationships and retention. PD enables firms to broaden offerings, thereby improving responsiveness to consumer demands and mitigating market uncertainty. These results align with Doktoralina et al., who emphasised the role of digital transformation and innovation in increasing coastal SME resilience.

Conclusion: ES and CRM contribute substantially to business competitiveness, with PD serving as a mediating mechanism that enhances their effects. Strengthening entrepreneurial capacity, fostering customer-focused strategies, and applying product diversification practices are necessary steps for improving the competitiveness of women-led businesses in coastal areas.

Keywords: Business Competitiveness; Entrepreneurial Skills; Customer Relationship Management; Product Diversification; Female Entrepreneurs.

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INTRODUCTION

Business Competitiveness (BC) reflects a company's ability to sustain and advance its market position by responding effectively to competitive pressures, demands for innovation, and customer expectations. In a globalised economy, BC not only signifies corporate success but also serves as a key catalyst for regional and national economic development (Coordinating Ministry for Economic Affairs Republic of Indonesia, 2024). In Indonesia, concerns regarding the competitiveness of small and medium enterprises (SMEs), particularly those in coastal regions, have become increasingly prominent (Bappenas, 2023). Despite the abundant natural resources and economic potential of coastal areas, many SMEs, predominantly managed by women, continue to face structural and operational challenges. However, few studies have thoroughly mapped the socio-economic realities and digital capacity of women entrepreneurs in coastal regions (Salsabila et al., 2024). These elements critically influence how effectively CRM, ES, and PD perform in real business settings. The integration of Islamic ethical values into entrepreneurial education also strengthens the sustainability and resilience of micro-enterprises in coastal Muslim communities, particularly when supported by faith-based learning institutions and digital learning platforms (Doktoralina et al., 2024).

Female entrepreneurship constitutes a key driver of economic activity in sectors including fisheries, seafood processing, tourism, and handicrafts. Nonetheless, restricted access to capital, technology, and formal markets continues to constrain growth. Product diversification and innovation are recognised as strategic approaches for enhancing competitiveness and ensuring long-term sustainability (Ferasso et al., 2020; Rekarti et al., 2019; Rekarti & Doktoralina, 2017; Yahaya & Doktoralina, 2019). Moreover, Corporate Social Responsibility (CSR) practices may be leveraged to strengthen economic resilience and promote inclusive development in coastal regions (Mareta, Doktoralina, & Lestari, 2024; Mareta, Doktoralina, Lestari, et al., 2024).

However, the limited participation of women in entrepreneurial ecosystems within coastal areas results in underutilised economic potential. The Ministry of Marine Affairs and Fisheries reports that only 30% of small businesses in coastal areas are led by women (East Ventures, 2023), with merely 12% demonstrating improved competitiveness and expansion in the past five years (International Finance Corporation/IFC, 2016). This disparity between potential and realised performance necessitates focused interventions to strengthen entrepreneurial capabilities, enhance business strategies, and increase access to resources.

Global trends indicate that empowering women-led SMEs could increase global GDP by up to USD 5 trillion (International Finance Corporation, 2023). In Indonesia, SMEs contribute 61.07% to national GDP, yet many women entrepreneurs still struggle to scale their businesses due to limited capacity and support (International Labour Organization, 2023). Overcoming these constraints demands immediate improvements in policy frameworks, technological accessibility, and business training. Integrated partnerships across sectors can potentially unlock growth, positioning female entrepreneurs as drivers of inclusive economic development.

A pre-survey involving 50 female entrepreneurs in coastal areas revealed that 70 per cent encounter difficulties in competing within increasingly saturated markets. The primary obstacles identified include weak innovation capacity, limited product diversification, and ineffective CRM strategies, highlighting the importance of Entrepreneurial Skills (ES) and Customer Relationship Management (CRM) in strengthening competitiveness. Accordingly,

this study investigates the influence of ES and CRM on Business Competitiveness (BC), with Product Diversification (PD) serving as a mediating variable.

ES are essential in strengthening business competitiveness. Haseeb et al. (2019) assert that these competencies include the ability to recognise market opportunities, innovate, manage risks, and organise business operations effectively. In coastal environments characterised by volatility, including unpredictable weather patterns, variable commodity prices, and unstable demand, such capabilities are critical for ensuring resilience and facilitating strategic adaptation (Gil-Gomez et al., 2020). Entrepreneurs who lack these skills tend to have limited capacity to respond to or take advantage of emerging opportunities.

Customer Relationship Management (CRM) constitutes a fundamental component in strengthening business competitiveness (Khan et al., 2022). It enables entrepreneurs to build enduring customer relationships, which support a deeper understanding of consumer preferences. According to Kotler et al. (2017), effective CRM fosters loyalty and encourages innovation in product development. In coastal regions, where product availability is often seasonal and dependent on natural resources, CRM becomes essential for maintaining stable and consistent business performance (Mahdi et al., 2019).

PD functions as a strategic response to market competitiveness. According to Ciampi et al. (2021), diversification reduces risk by preventing dependence on a single product line and broadens market appeal. Its successful application improves BC through greater responsiveness to consumer needs and market differentiation. Nonetheless, achieving meaningful PD often depends on the presence of strong ES and CRM systems/practices (Kamalaldin et al., 2020).

Recognising the strategic significance of ES, CRM, and PD in shaping BC, this study applies Structural Equation Modelling-Partial Least Squares (SEM-PLS) to analyse their relationships among female entrepreneurs in coastal regions. The pre-survey further revealed that 60% of respondents who diversified their products experienced enhanced competitiveness, confirming PD's mediating role.

To explore the challenges encountered by female entrepreneurs in enhancing business competitiveness, three principal research questions have been formulated. First, how do ES and CRM affect BC among female entrepreneurs in coastal regions? Second, what is the mediating role of PD in the relationship between ES, CRM, and BC? Third, to what extent can strengthening ES and CRM facilitate PD and, subsequently, elevate BC? These questions guide the empirical analysis and aim to provide strategic insights for enhancing the performance and competitiveness of women-led businesses in coastal areas.

LITERATURE REVIEW

Theoretical Study

Theoretical frameworks underpinning this research provide a foundation for analysing the effects of Entrepreneurial Skills (ES) and Customer Relationship Management (CRM) on Product Diversification (PD) and Business Competitiveness (BC) among female entrepreneurs in coastal regions. ES enhances business performance by equipping entrepreneurs to recognise opportunities, manage risks, and drive innovation, which is fundamental in volatile coastal environments (Haseeb et al., 2019). CRM fosters customer loyalty and satisfaction through deeper understanding of client preferences, an important factor in seasonal industries (Kotler et al., 2017). PD serves as a strategic approach for mitigating business risks and enhancing competitiveness (Kraus et al., 2021).

In addition, recent studies underscore the importance of embedding local wisdom and Islamic values into diversification strategies, particularly in religiously grounded coastal communities (Doktoralina et al., 2025; Mareta, Doktoralina, & Lestari, 2024; Mareta, Doktoralina, Lestari, et al., 2024). Indonesian scholars contend that such integration must align with regional resources and ethical norms to ensure social legitimacy (Rekarti & Doktoralina, (2017); Yahaya & Doktoralina, (2019), and Doktoralina et al. (2024). Furthermore, digital literacy has been shown to enhance SME competitiveness by enabling digital transformation and innovation capability, thereby supporting entrepreneurs in adapting their business strategies to changing market conditions (Firmansyah et al., 2024). Collectively, these perspectives highlight the necessity of combining entrepreneurial competencies, customer engagement, cultural values, and digital tools to promote sustainable competitiveness in coastal enterprises.

The Role of Product Diversification as a Mediating Variable for Entrepreneurs in Coastal Areas

Product Diversification (PD) acts as an instrumental mediating factor, linking entrepreneurial resources and skills to enhanced business performance in coastal economies. By expanding product offerings, businesses can mitigate risks associated with economic uncertainties (Bausch & Pils, 2009; Shen & Zhuo, 2023). However, existing literature fails to clearly articulate how product diversification bridges entrepreneurial skills and customer relationship management with business competitiveness through a causal pathway. Strengthening the theoretical justification for PD is therefore crucial in explaining its strategic role beyond empirical observation.

Entrepreneurial Skills (ES) and Product Diversification (PD) among Female Entrepreneurs in Coastal Regions

ES are essential competencies for managing and growing a business. According to Mikalef et al. (2020); Vodă and Florea (2019), these skills encompass opportunity identification, risk management, innovation, and strategic decision-making. Entrepreneurs with robust ES are better positioned to adapt to shifting market conditions and respond to challenges with innovative solutions. This adaptability is of particular significance for female entrepreneurs operating in coastal areas, where economic uncertainties prevail due to their dependence on sectors like fishing and tourism. In addition, ES extend beyond mere operational management, incorporating the ability to seize emerging opportunities. Doktoralina et al. (2025) highlighted that coastal women entrepreneurs equipped with digital and ethical entrepreneurship training demonstrate better innovation performance and resilience Akpan et al. (2022) also emphasised that continuous product innovation is essential to maintaining competitiveness in dynamic markets. Therefore, for female entrepreneurs in coastal regions, continuous innovation is necessary to maintain competitiveness. Based on this, the first hypothesis can be constructed:

H₁: ES have a positive impact on PD.

Customer Relationship Management (CRM) and its Role in Product Diversification

CRM refers to a strategic approach aimed at managing interactions between businesses and customers, with the goal of enhancing both customer loyalty and satisfaction (Anshari et al., 2019; Boldureanu et al., 2020; Hollebeek et al., 2019). CRM not only supports loyalty but also acts as a driver of innovation through customer feedback. According to Kotler et al. (2017),

a well-implemented CRM strategy can extend the customer lifecycle, increase customer value, and generate opportunities for PD by leveraging customer feedback.

For female entrepreneurs in coastal regions, managing customer relationships is particularly critical, as many of these businesses are dependent on building and maintaining strong connections with both local and tourist customers. Research by Distanont (2020); Ndofirepi (2020) highlights that effective CRM enables businesses to gain a deeper understanding of customer behaviours and preferences, allowing for the creation of more personalised and relevant product offerings. In light of these findings, CRM not only helps retain existing customers but also opens up opportunities for innovation in product development. Based on this, the second hypothesis is formulated as follows:

H₂: CRM has a positive influence on PD.

Product Diversification (PD) as a Strategic Approach for Female Entrepreneurs in Coastal Regions

PD refers to a strategic business approach that involves expanding the range of products or services offered in order to reach new market segments or increase market share. This strategy is particularly necessary for small businesses in coastal areas, where economic activity often relies heavily on natural resources or seasonal industries. Burns (2022); Wardana et al. (2020) argue that PD reduces dependence on a single product line, thereby increasing competitiveness and broadening the customer base. Studies by Mareta et al. (2024a) affirm that integrating inclusive development and CSR strategies can increase resilience through product expansion in coastal communities. Kraus et al. (2021) suggest that while PD entails certain risks, it remains one of the most effective growth strategies when implemented correctly. For female entrepreneurs in coastal regions, product diversification may involve the introduction of value-added products, particularly in the form of processed seafood, artisanal goods, and tourism-related services tailored to both domestic and international markets. Benzaghta et al. (2021) further argue that female entrepreneurs, particularly those in coastal areas, possess a distinct capacity for innovation in product diversification due to their direct involvement in production processes and their access to local resources. Through the application of well-formulated diversification strategies, these entrepreneurs are better positioned to manage market volatility and respond to increasing competition. Therefore, the following hypothesis is proposed:

H₃: PD positively influences BC.

Business Competitiveness (BC) and Female Entrepreneurs in Coastal Regions

BC refers to the ability of a company to maintain an advantage over its competitors. As Porter (2017) posits, generic strategies including cost leadership, differentiation, and focus are foundational approaches to achieving competitiveness. In the context of small and medium-sized enterprises (SMEs), competitiveness can be achieved through product innovation, effective Customer Relationship Management (CRM), and operational efficiency.

For female entrepreneurs in coastal regions, competitiveness is shaped by their capacity to manage limited resources effectively and capitalise on opportunities through product innovation and diversification. Azeem et al. (2021); Fernando et al. (2019); Gieure et al. (2020) emphasise the importance of resources that are valuable, rare, inimitable, and non-substitutable in achieving sustainable competitiveness. Salsabila et al. (2024) also affirmed that economic resilience is achievable by enhancing innovation and strategic capabilities among women-led enterprises. Consequently, leveraging local resources and integrating innovation into their

products becomes essential for female entrepreneurs in these areas. Based on this, the following hypothesis is proposed:

H4: PD mediates the relationship between ES and BC.

Relationship Between ES, CRM, PD, and BC

The literature suggests that ES and CRM are essential in promoting PD, which ultimately affects business competitiveness. Research by Alsayegh et al. (2020); Benzaghta et al. (2021); Farida and Setiawan (2022); Fernando et al. (2019); Gieure et al. (2020); Liu et al., (2019) that effective business management and customer relationship strategies can lead to product innovation. This PD enables entrepreneurs to expand their markets and improve competitiveness. Noting the influence X_1 (Entrepreneurial Skills), X_2 (Customer Relationship Management), M (Product Diversification), Y (Business Competitiveness) a theoretical framework is formed, as shown in Figure 1:

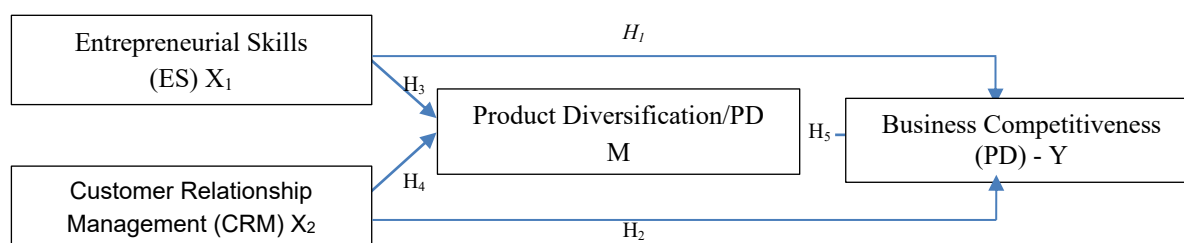


Figure 1: Research model

METHOD

This study applies a quantitative approach to examine the direct and indirect relationships between Entrepreneurial Skills (ES), Customer Relationship Management (CRM), and Business Competitiveness (BC), with Product Diversification (PD) as a mediating variable. The analysis utilises Structural Equation Modelling–Partial Least Squares (SEM-PLS) through the SmartPLS 3 software. The modelling process follows two phases: evaluation of the measurement model (validity and reliability) and assessment of the structural model (hypothesis testing).

Before collecting the main data, the researchers conducted expert reviews to ensure content validity, followed by a pilot test with 20 respondents to verify clarity, consistency, and relevance. Reliability was tested using Cronbach's Alpha and Composite Reliability, while construct validity was assessed via factor loadings and Average Variance Extracted (AVE). All constructs exceeded recommended thresholds, affirming the instrument's robustness and reliability.

The SEM-PLS analysis estimates structural equations that capture the hypothesised causal relationships. The model evaluates both direct effects and mediating pathways, which are formally represented as follows:

Structural Equation for the Dependent Variable (BC):

$$BC = \gamma_1 \cdot PD + \gamma_2 \cdot ES + \gamma_3 \cdot CRM + \zeta_2$$

Information:

BC : Business Competitiveness

PD : Product Diversification

ES : Entrepreneurial Skills

CRM : Customer Relationship Management

$\gamma_1, \gamma_2, \gamma_3$ Path coefficients from PD, ES, and CRM to BC.

ζ_2 = error term

This equation reflects the direct influence of ES and CRM on BC, as well as the mediating role of PD in enhancing competitiveness.

Equation for the mediating variable (PD)

$$PD = \beta_1 \cdot ES + \beta_2 \cdot CRM + \zeta_1$$

Information:

PD : Product Diversification

ES : Entrepreneurial Skills

CRM : Customer Relationship Management

β_1, β_2 path coefficients from ES and CRM to PD.

ζ_1 = error term

This formulation enables the identification of both direct and indirect effects, thereby providing a more comprehensive understanding of the influence exerted by ES and CRM on BC through the mediation of PD. The model aims to maximise the explained variance (R^2) in the endogenous variables and assess the strength of hypothesised relationships using bootstrapping techniques.

Research Design

The study adopted a correlational research design with an associative approach to examine the relationships among four constructs: Entrepreneurial Skills (ES), Customer Relationship Management (CRM), Product Diversification (PD), and Business Competitiveness (BC). BC was designated as the dependent variable, while ES and CRM were treated as independent variables. PD functioned as the mediating construct within the structural model. This design facilitated a comprehensive analysis of both direct and indirect effects among the variables.

The research was contextualised within coastal economic environments where female entrepreneurs operate small and medium enterprises (SMEs) exposed to market volatility, seasonal shifts, and limited infrastructure. By focusing on this specific context, the study aimed to generate practical insights into competitiveness strategies that respond to local economic realities.

Operational Definition of Variables

Table 1 Operational Definition of Variables

Variable	Operational Definition	Indicator	Scale
Business Competitiveness (BC). Hair et al. (2021); Barney (1991)	The ability of female-led SMEs in coastal regions to maintain and improve market performance in volatile environments.	Customer retention, product uniqueness, market share	Ordinal
Entrepreneurial Skills. Haseeb et al. (2019); Gil-Gomez et al. (2020)	The ability to identify market opportunities, innovate, manage risks, and make strategic decisions to achieve business growth.	Opportunity identification, innovation, risk management, strategic thinking.	Ordinal
Customer Relationship Management (CRM) Kotler et al. (2017); Khan et al. (2022); Mahdi et al. (2019)	A strategic approach to building long-term customer relationships through proactive communication, service delivery, and feedback mechanisms.	Communication, responsiveness, customer feedback, satisfaction.	Ordinal
Product Diversification (PD) Ciampi et al. (2021); Kamalaldin et al. (2020); Weeks (2021); Bassett et al. (2022)	The expansion of product offerings to reduce dependence on a single item and improve resilience against market fluctuations.	Product variety, market segmentation, innovation in offerings	Ordinal

Source: Data Processed by Author (2024)

Population, Sampling and Data Collection

The study targeted female entrepreneurs managing SMEs in coastal regions, particularly in fisheries, seafood processing, tourism, and local crafts, using cluster sampling across four geographical zones comprising North, South, East, and West, with 30 randomly selected respondents from each cluster, resulting in a total of 120 participants. Eligible respondents had operated their businesses for at least two years and were actively involved in customer management and product development. Data were collected through a structured questionnaire administered both online and in person, using a five-point Likert scale to assess Entrepreneurial Skills, Customer Relationship Management, Product Diversification, and Business Competitiveness. The instrument included demographic information, variable indicators, and open-ended feedback. Ethical procedures ensured informed consent and confidentiality, and the data were analysed using SEM PLS to estimate path coefficients, model validity, and mediation effects.

RESULTS AND DISCUSSION

Descriptive

Descriptive analysis was conducted to examine the central tendency and dispersion of each variable. As presented in Table 2, the mean scores for Entrepreneurial Skills (ES), Customer Relationship Management (CRM), Product Diversification (PD), and Business Competitiveness (BC) ranged between 21.4 and 21.9, indicating moderate levels across constructs. The minimum and maximum scores indicated variation in entrepreneurial capability and competitiveness levels, while the standard deviations, particularly for product diversification (3.15) and business competitiveness (3.14), suggested substantial variability among respondents.

Table 2 Descriptive test

	ES (X ₁)	CRM (X ₂)	PD (M)	BC (Y)
Mean	21.6	21.9	21.7	21.4
Maximum	25	25	25	25
Minimum	11	12	9	10
Std. Dev.	2.83	2.56	3.15	3.14

Source: Data Processed (2024)

These results imply that female entrepreneurs in coastal regions exhibit varying capacities in managing customer relationships, diversifying their offerings, and maintaining competitive advantage.

Measurement Model Assessment

The validity and reliability of the constructs were assessed through convergent and discriminant validity tests. All factor loadings exceeded the 0.7 threshold, indicating acceptable item reliability. Composite Reliability (CR) values ranged from 0.904 to 0.947, surpassing the recommended cut-off of 0.7, while Average Variance Extracted (AVE) values exceeded 0.5, thus confirming convergent validity (Gerbing and Anderson, 1988).

Convergent validity

Convergent validity was assessed to determine the consistency of multiple items measuring the same concept. As per Hair et al. (2021) this was evaluated using factor loadings, composite reliability, and average variance extracted (AVE). All item loadings exceeded the recommended threshold of 0.7, in line with Mehmetoglu and Venturini (2021), confirming adequate convergent validity.

Table 3 Outer Loadings

	BC	CRM	ES	PD
BC1	0.880	0.466	0.701	0.665
BC2	0.887	0.460	0.611	0.696
BC3	0.910	0.558	0.623	0.658
BC4	0.893	0.533	0.784	0.640
BC5	0.851	0.473	0.688	0.680
CRM2	0.327	0.726	0.430	0.428
CRM3	0.476	0.858	0.513	0.583
CRM4	0.474	0.893	0.577	0.586
CRM5	0.569	0.880	0.540	0.750
ES1	0.837	0.480	0.861	0.692
ES2	0.695	0.459	0.857	0.545
ES3	0.504	0.607	0.833	0.516
ES4	0.473	0.535	0.798	0.500
PD1	0.448	0.521	0.440	0.735
PD2	0.682	0.649	0.580	0.916
PD3	0.700	0.632	0.658	0.918
PD4	0.720	0.629	0.674	0.893
PD5	0.637	0.621	0.534	0.795

Source: Data Processed (2024)

The composite reliability (CR) values, as shown in Table 4, range from 0.904 to 0.947, indicating that the construct indicators consistently reflect the latent construct and exceed the recommended standard of 0.7 (Hair et al., 2021). Similarly, the average variance extracted (AVE), which measures the variance explained by the latent construct, ranges from 0.701 to 0.782, surpassing the recommended threshold of 0.5 (Hair et al., 2021).

Table 4 Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	AVE
ES	0.859	0.875	0.904	0.701
CRM	0.863	0.897	0.906	0.709
PD	0.906	0.919	0.931	0.730
BC	0.930	0.931	0.947	0.782

Source: Data Processed (2024)

Discriminant validity

Discriminant validity assesses the extent to which a construct is truly distinct from other constructs, as indicated by the Fornell-Larcker criterion. According to Fornell and Larcker (1981), discriminant validity is confirmed when the square root of the Average Variance Extracted (AVE) for each construct exceeds its correlations with any other construct. As shown in Table 5, all diagonal values (representing the square roots of AVEs) are higher than the

corresponding inter-construct correlations, indicating that discriminant validity has been established.

Table 5 Discriminant Validity

	BC	CRM	ES	PD
BC	0.884			
CRM	0.562	0.842		
ES	0.769	0.615	0.837	
PD	0.756	0.717	0.683	0.854

Source: Data Processed (2024)

R-Square (R^2)

The R^2 value reflects the proportion of variance in the dependent variable explained by the independent variables in a model. For BC, an R^2 of 0.705 indicates that 70.5% of the variability is explained by the model, with the remaining 29.5% due to external factors. Similarly, an R^2 of 0.611 for PD suggests that 61.1% of its variation is accounted for by the independent variables, with 38.9% influenced by other factors. A higher R^2 value signifies a stronger explanatory power of the model regarding the dependent variable's variability.

Table 6 R-Square (R^2)

	R Square
Business Competitiveness (BC)	0.705
Product Diversification (PD)	0.611

Source: Data Processed (2024)

Hypothesis testing

Hypothesis testing in SEM-PLS (Structural Equation Modelling - Partial Least Squares) is performed using the bootstrapping method to assess the significance of path coefficients between latent variables. First, the PLS algorithm is run to obtain path estimates, followed by bootstrapping, which generates the standard error distribution using a large number of resamples (e.g., 500 or 5,000). The t-statistics and p-values are then calculated to determine the significance of the relationships. A hypothesis is accepted if the t-statistic exceeds 1.96 (for 5% significance) or the p-value is below 0.05.

Table 7 Path Coefficients

Path	Coefficient)	T Statistics	P Values	Result
ES -> PD	0.391	3.511	0.000	Accepted
CRM -> PD	0.476	4.155	0.000	Accepted
PD -> BC	0.457	3.162	0.002	Accepted
ES -> BC	0.517	3.472	0.001	Accepted
CRM -> BC	0.397	3.281	0.001	Accepted

Source: Data Processed (2024)

Relationship Between CRM and PD

Based on the analysis, there is a strong and significant relationship between Customer Relationship Management (CRM) and Product Diversification (PD), with a coefficient of 0.476, a t-statistic of 4.155, and a p-value of 0.000 ($p < 0.05$). This means that effective CRM practices, particularly understanding customer preferences (CRM₂) and using customer feedback to develop products (CRM₅), enable entrepreneurs to diversify their product offerings. By managing customer relationships well, entrepreneurs can identify and respond to varying market needs, thus driving product diversification.

Relationship Between ES and PD

The results indicate a significant positive relationship between Entrepreneurial Skills (ES) and Product Diversification (PD), with a coefficient of 0.391, a t-statistic of 3.511, and a p-value of 0.000 ($p < 0.05$). This suggests that higher entrepreneurial skills, including innovation (ES₁) and effective risk management (ES₂), empower entrepreneurs to diversify their products. Entrepreneurs who regularly innovate and manage risks are more capable of introducing new products (PD₂) and expanding their market reach (PD₃), which enhances product diversification.

Relationship Between PD and BC

The analysis shows a significant positive relationship between Entrepreneurial Skills (ES) and Business Competitiveness (BC), with a coefficient of 0.517, a t-statistic of 3.472, and a p-value of 0.001 ($p < 0.05$). This indicates that higher levels of entrepreneurial skills, including the ability to identify business opportunities (ES₄) and manage business operations effectively (ES₅), directly improve business competitiveness. Entrepreneurs who possess strong decision-making abilities (ES₃) are better equipped to increase market share (BC₃) and customer satisfaction (BC₄), ultimately boosting their overall competitiveness.

Relationship Between ES and BC

The relationship between Customer Relationship Management (CRM) and Business Competitiveness (BC) is significant, with a coefficient of 0.397, a t-statistic of 3.281, and a p-value of 0.001 ($p < 0.05$). Effective CRM practices, including maintaining good communication with customers (CRM₁) and tailoring products to individual needs (CRM₄), result in enhanced customer loyalty and satisfaction, which in turn improves business competitiveness. Entrepreneurs who excel in managing customer relationships can better retain clients, increase market share (BC₃), and achieve long-term success in competitive markets (BC₅).

Relationship Between CRM and BC

The analysis reveals a significant relationship between Customer Relationship Management (CRM) and Business Competitiveness (BC), with a coefficient of 0.397. This suggests that effective CRM practices greatly enhance business competitiveness by fostering customer loyalty, improving customer satisfaction, and providing better service experiences. Entrepreneurs who manage customer relationships well are more likely to retain clients, attract new ones, and generate repeat business, contributing to their overall competitiveness. The t-statistic of 3.281 and p-value of 0.001 ($p < 0.05$) validate the significance of this relationship, confirming that CRM positively impacts BC.

Table 8 Specific Indirect Effects

	Original Sample (O)	T Statistics (O/STDEV)	P Values	Ket
ES-> PD -> BC	0.295	2.757	0.006	Accepted
CRM -> PD -> BC	0.360	4.170	0.000	Accepted

Source: Data Processed (2024)

The results from Table 8 provide a clear insight into the indirect relationships between Customer Relationship Management (CRM), Entrepreneurial Skills (ES), Product Diversification (PD), and Business Competitiveness (BC). Both CRM and ES have been shown to exert significant indirect effects on BC through the mediating variable, PD, underscoring the determinative role of diversification strategies in enhancing competitiveness, especially among female entrepreneurs in coastal regions. These findings align with previous research by Ferasso et al. (2020) and Gil-Gomez et al. (2020), who emphasise that diversification strategies serve as a bridge between organisational capabilities and competitive advantage, particularly in dynamic environments.

Indirect Effect of CRM on BC Through PD

The indirect effect of CRM on BC, with a coefficient of 0.360, signifies that effective CRM practices facilitate product diversification, which in turn enhances business competitiveness. Entrepreneurs who maintain strong customer relationships (e.g., regularly communicating with customers and adapting products to meet their needs) are better positioned to diversify their product offerings. In coastal regions, where market isolation and limited access to contemporary trends can restrict business growth, this ability to align products with customer preferences is vital. The significant t-statistic of 4.17 and the p-value of 0.000 provide strong support for the hypothesis that CRM indirectly improves BC through its influence on PD. By successfully managing customer relationships, female entrepreneurs can broaden their product range, thus gaining a competitive edge by attracting a wider market base and reducing dependency on a single product line or customer segment. This result corroborates earlier findings by Mahdi et al. (2019) and Khan et al. (2022), who found that CRM enhances firms' responsiveness and innovation through strengthened market feedback. By successfully managing customer relationships, female entrepreneurs can broaden their product range, thus gaining a competitive edge by attracting a wider market base and reducing dependency on a single product line or customer segment.

Indirect Effect of ES on BC Through PD

Similarly, the indirect effect of ES on BC, with a coefficient of 0.295, illustrates that entrepreneurial skills also significantly influence business competitiveness through product diversification. The results suggest that entrepreneurs who demonstrate strong innovation, risk management, and decision-making capabilities are more adept at diversifying their products to meet changing market conditions. In dynamic coastal industries, particularly fisheries, seafood processing, and tourism, the ability to innovate and seize market opportunities through product diversification is key to long-term success. The t-statistic of 2.757 and p-value of 0.006 confirm the significance of this relationship. These results reinforce the theoretical proposition by Haseeb et al. (2019) that innovation-driven skills are fundamental in contexts where economic activities are resource-dependent and exposed to environmental variability. This reinforces the

idea that ES indirectly enhance BC by enabling entrepreneurs to diversify their product offerings, adapt to shifting market demands, and maintain their competitiveness in the face of seasonal and economic fluctuations.

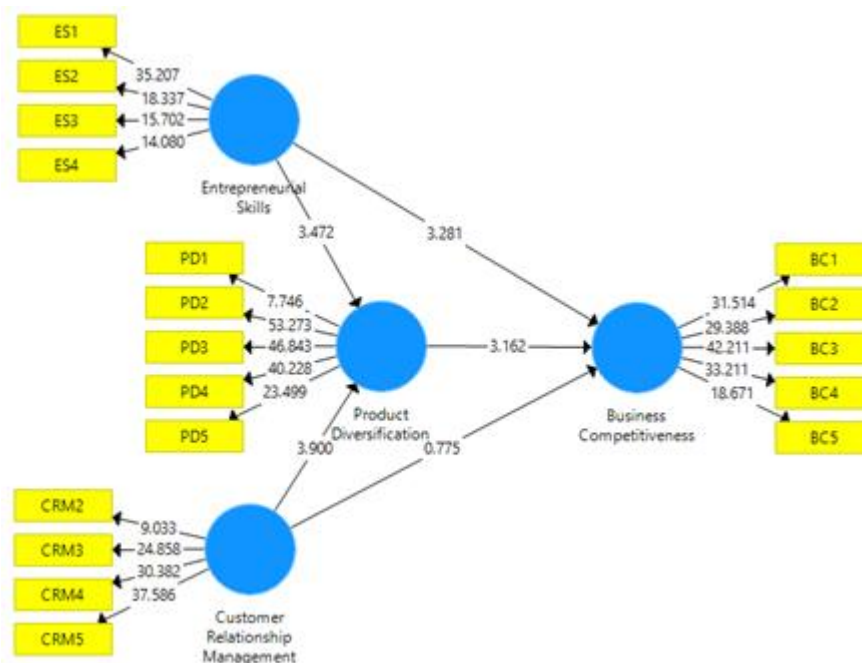


Figure 2: Full Model Path Diagram (T-Values)

Interpretation of Full Model Path Diagram (T-Values)

The full model path diagram (Figure 2) further demonstrates the intricate relationships between CRM, ES, PD, and BC, confirming that both CRM and ES positively and significantly impact PD. In the context of coastal areas, CRM helps businesses understand customer preferences and trends, which are essential for modifying existing products or creating new ones that resonate with target markets. This is especially important for female entrepreneurs operating in isolated or underserved regions, where staying in tune with market needs can be challenging but is essential for maintaining relevance and competitiveness.

Entrepreneurial skills, including the ability to innovate, manage risks, and make informed decisions, also serve an important function in enhancing product diversification. Entrepreneurs with stronger ES are better positioned to respond to environmental and market fluctuations, which are typical in coastal industries. This adaptability is essential for sustaining business operations across seasonal changes and other challenges inherent in industries like fisheries and tourism.

Product diversification, in turn, significantly boosts business competitiveness. By diversifying their product offerings, entrepreneurs can mitigate the risks associated with over-reliance on a single product or sector. This is particularly important in industries prone to seasonal fluctuations, where diversifying products helps businesses reach broader markets, reduce dependency on specific sectors, and stabilise their income streams. The ability to offer

a varied product portfolio enhances business stability and allows entrepreneurs to maintain a competitive advantage in their respective industries.

Indirect Role of CRM and ES in Improving Business Competitiveness

Both CRM and ES indirectly influence BC through PD. Effective CRM opens up new opportunities for product diversification by aligning product offerings with customer preferences, which in turn strengthens competitiveness. For example, entrepreneurs who effectively manage customer relationships can anticipate market demands and adjust their product offerings accordingly, leading to greater customer retention and market expansion.

Similarly, ES indirectly impacts BC through PD by equipping entrepreneurs with the skills needed to identify market opportunities, innovate, and diversify their product offerings. Entrepreneurs who possess strong entrepreneurial skills are more likely to develop and modify products that meet evolving market needs, ensuring long-term competitiveness and sustainability, particularly in the volatile environments of coastal areas.

CONCLUSION

This study demonstrates that Entrepreneurial Skills (ES) and Customer Relationship Management (CRM) significantly influence Business Competitiveness (BC) among female entrepreneurs in coastal regions, both directly and through the mediating role of Product Diversification (PD). The empirical results show that ES enhance innovation, risk management, and strategic responsiveness, enabling entrepreneurs to adapt to fluctuating market conditions and pursue competitive advantage. CRM contributes by strengthening customer relationships and improving the alignment of product offerings with market needs. PD reinforces this dynamic by broadening product portfolios, reducing dependency on single product lines, and facilitating entry into wider market segments. Together, these findings confirm that strengthening ES and CRM not only supports PD but also elevates BC, thus comprehensively addressing all three research questions. The study further extends existing literature by validating the mediating mechanism of PD and highlighting how capability development translates into sustainable competitiveness for women-led businesses in coastal areas.

Building upon these insights, several recommendations can be made for practitioners and policymakers. Targeted programmes are needed to enhance entrepreneurial capacity through training, improve access to financial and digital resources, and promote CRM-based market engagement tools tailored to coastal settings. Development strategies should incorporate local knowledge systems and recognise the socio-economic realities of female entrepreneurs, particularly those operating in resource-constrained environments. Future research is encouraged to explore additional influencing variables, including institutional support, business maturity, and technological readiness, as well as the impact of socio-cultural norms on diversification behaviour. Comparative and longitudinal studies would also be valuable to assess the generalisability and long-term implications of the proposed model across different regions, industries, and demographic groups.

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