



**THE EFFECT OF DIGITAL MARKETING STRATEGY AND PRODUCT
INNOVATION ON THE SUCCESS OF CULINARY MSMES IN
PANGKALPINANG CITY WITH CUSTOMER SATISFACTION AS AN
INTERVENING VARIABLE**

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Abstract

This study aims to analyze the effect of digital marketing strategies and product innovation on the success of Micro, Small, and Medium Enterprises (MSMEs) in the culinary sector in Pangkalpinang City, with customer satisfaction as an intervening variable. The background of this study is based on the rapid development of the digital economy, which has driven changes in business strategies, particularly among MSMEs, as well as the increasing competition through digital-based platforms. Although the number of MSMEs continues to grow, several issues remain, including suboptimal digital marketing utilization, inconsistent product innovation, and varying levels of customer satisfaction. This study employs an explanatory quantitative approach, with data collected through questionnaires distributed to 100 culinary MSME actors selected using purposive sampling. Data analysis was conducted using multiple linear regression and path analysis to examine both direct and indirect relationships among variables. The results show that digital marketing strategies and product innovation have a positive and significant effect on both customer satisfaction and MSME success. Product innovation has a more dominant influence on customer satisfaction compared to digital marketing. In addition, customer satisfaction is proven to be the most dominant variable influencing MSME success. The mediation analysis indicates that customer satisfaction is able to



mediate the effect of digital marketing strategies and product innovation on MSME success, both partially and simultaneously. Overall, this study confirms that the success of culinary MSMEs is not solely determined by digital marketing strategies and product innovation directly, but is highly influenced by the ability of business actors to create customer satisfaction. Therefore, MSME actors need to integrate digital marketing strategies with sustainable product innovation in order to enhance competitiveness and business sustainability in the digital era.

Keywords: Digital Marketing Strategy, Product Innovation, Customer Satisfaction, MSME Success, Culinary MSMEs

INTRODUCTION

The development of the global economy over the past decade has indicated a shift in the business paradigm toward a digital economy. Digital transformation has significantly altered patterns of production, distribution, and consumption, particularly in the micro, small, and medium enterprises (MSMEs) sector. Digitalization is no longer merely a strategic option but has become an adaptive necessity for business actors in facing increasingly competitive market conditions (Halik, 2024).

Globally, the COVID-19 pandemic has accelerated the adoption of digital technology in business activities, including social media-based marketing and marketplace platforms. Changes in consumer behavior toward online transactions have compelled business actors to adjust their marketing strategies in order to remain relevant and competitive. Studies show that the utilization of digital marketing can enhance market reach and improve the effectiveness of MSME promotional activities (Zulkarnaini, 2025).

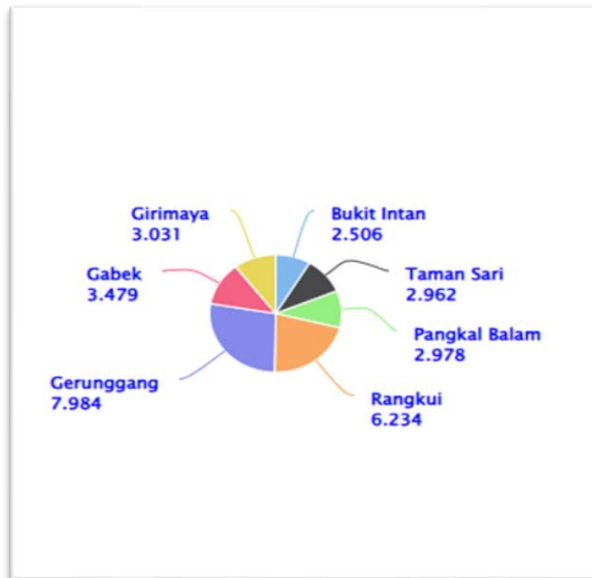
In Indonesia, MSMEs play a strategic role in national economic development. They contribute significantly to employment absorption and the formation of Gross Domestic Product (GDP). In this context, the ability to adapt to digital technology becomes a crucial factor in maintaining business sustainability and enhancing competitiveness (Amanah, 2025).

The growth of Micro, Small, and Medium Enterprises (MSMEs) in the Bangka Belitung Islands Province has shown considerable progress in recent years and has become one of the main pillars of the regional economy. In 2024,



approximately 79,454 MSME actors were recorded as having obtained a Business Identification Number (NIB). The MSME sector contributes more than 60% to the Regional Gross Domestic Product (GRDP) and absorbs a large portion of the workforce, thereby playing an important role in improving community welfare. This growth has also been driven by digitalization, with online MSME sales increasing by around 50% in 2025, indicating the ability of MSME actors to adapt to technological advancements and digital market trends.

Similarly, the growth of MSMEs in Pangkalpinang City has shown a positive trend in recent years and has become one of the main drivers of the regional economy. In 2025, the number of MSMEs in Pangkalpinang City was recorded at 26,875 units. These are distributed across several sub-districts, reflecting stable annual growth. The majority of MSMEs are micro-scale enterprises, predominantly operating in the culinary, trade, and service sectors, which have grown rapidly alongside the increasing tourism and trade activities in Pangkalpinang as the provincial capital. This growth plays a significant role in employment generation, increasing community income, and driving regional economic development. Therefore, MSMEs have become a strategic sector in community-based local economic development in Pangkalpinang City. The following presents data on the number of MSMEs by sub-district in Pangkalpinang City.



Based on the diagram, the number of MSMEs in Pangkalpinang City is distributed across several sub-districts with varying figures. Gerunggung Sub-district has the highest number of MSMEs, totaling 7,984 units, followed by

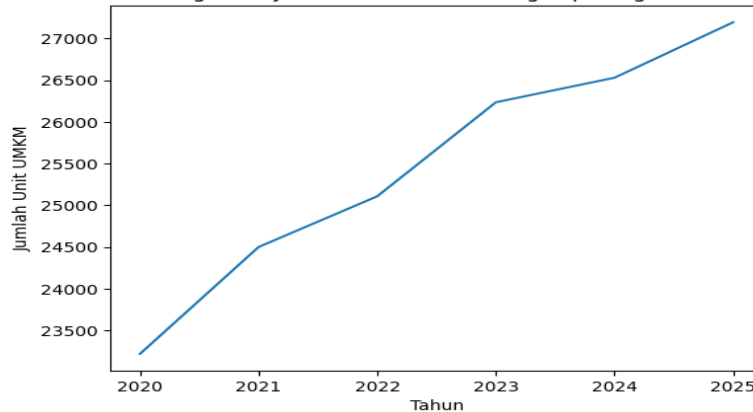


Rangkui Sub-district with 6,234 units. Furthermore, Gabek Sub-district has 3,479 units, Girimaya Sub-district has 3,031 units, Pangkal Balam Sub-district has 2,978 units, and Taman Sari Sub-district has 2,962 units. The lowest number of MSMEs is found in Bukit Intan Sub-district, with 2,506 units. This data indicates that MSME activities in Pangkalpinang City are more concentrated in Gerunggang and Rangkui Sub-districts, making these two areas the main centers of MSME economic activity in the city.

According to data from the Department of Cooperatives, MSMEs, and Trade of Pangkalpinang City, Bangka Belitung Islands Province, the number of Micro, Small, and Medium Enterprises (MSMEs) in Pangkalpinang increased to 26,875 units in 2025, compared to 26,529 units in the previous year. This increase in MSMEs is predominantly driven by businesses operating in the ready-to-eat culinary sector. The following table presents the growth of MSMEs in Pangkalpinang City over the past five years.

Graph of MSME Growth Over a Five-Year Period

Tren Peningkatan Jumlah UMKM Kota Pangkalpinang (2020–2025)



Source: Department of Cooperatives, MSMEs, and Trade of Pangkalpinang City

Based on data from the Department of Cooperatives, Trade, and MSMEs of Pangkalpinang City, the number of MSMEs has shown a consistently increasing trend over the 2020–2025 period. In 2020, there were 23,222 units recorded, which increased to 24,502 units in 2021, and further rose to 25,109 units in 2022. A relatively significant increase occurred in 2023, reaching 26,235 units. This growth continued in 2024 with 26,529 units, and by mid-2025, the number of MSMEs had reached 27,193 units.

Quantitatively, there has been an increase of 3,971 MSME units over the past five years. This trend reflects a positive dynamic in local entrepreneurial growth and indicates increasing community participation in the productive business sector. This growth also suggests that MSMEs have become one of the



main pillars driving the regional economy, both in terms of job creation and supporting local economic development.

The culinary sector is one of the MSME subsectors that has experienced rapid growth. The consumptive nature of its products and relatively stable demand make this sector a major contributor to regional economic dynamics. However, the high level of competition requires business actors to continuously innovate and develop effective marketing strategies (Halik, 2024).

Digital marketing strategies through social media, marketplaces, and online delivery services have become key instruments in expanding the market share of culinary MSMEs. Studies indicate that digital marketing strategies have a positive effect on increasing purchase intention and consumer satisfaction (Nahdiyah & Murtadlo, 2025). In addition to marketing strategies, product innovation is a crucial factor in creating differentiation and competitive advantage. Product innovation encompasses not only menu variations but also packaging, taste quality, and attractive presentation. Empirical studies show that product innovation has a significant effect on customer satisfaction and business performance (Budianto & Defrizal, 2025).

In terms of consumer behavior, customer satisfaction is a key determinant of business success. High levels of satisfaction have the potential to increase customer loyalty, repeat purchases, and word-of-mouth promotion. A study by Dewi (2025) shows that digital marketing and product quality simultaneously have a positive effect on customer satisfaction in culinary MSMEs.

The emergence of various digitally-based culinary businesses reflects an adaptive response to technological developments. The culinary sector dominates MSMEs in Pangkalpinang City, as it is one of the main destinations for local, domestic, and international tourists. However, the increasing number of business actors has also intensified competition. The phenomenon of platform-based competition through Instagram, TikTok, marketplaces, and online delivery services requires business actors to be more creative in attracting consumer attention. Visual promotion strategies and digital content have become essential components of modern MSME marketing (Hakim et al., 2025).

Based on preliminary observations, it is evident that many MSMEs have not yet digitalized their businesses, either through the adoption of digital marketing strategies or collaboration with online transportation services. Continuous efforts undertaken by the Pangkalpinang City Government and the Bangka Belitung Islands Provincial Government through the Department of Cooperatives and MSMEs are expected to accelerate the transition of MSMEs



into the digital ecosystem. In addition, to further promote the development of MSMEs in Bangka Belitung, the provincial government has recently followed up on a synergy initiative with the One Kecamatan, One Center of Entrepreneurship (OK OCE) program (Ari Agung Nugroh, 2023). On the other hand, the level of product innovation among some culinary MSMEs remains inconsistent. Many businesses have not regularly updated their menus or introduced attractive packaging innovations. In fact, innovation has been proven to play a significant role in enhancing competitiveness and marketing performance (Ismail, 2025).

Variations in customer satisfaction levels also represent a relevant empirical issue. Some consumers demonstrate high loyalty, while others tend to switch easily to competitors due to inconsistent product or service quality. This condition indicates that the relationship between marketing strategies, product innovation, and business success has not been fully optimized. The success of MSMEs is not solely measured by increased revenue but also by business sustainability, customer growth, and market stability. Digital marketing, as a promotional strategy, holds significant potential; however, its effectiveness largely depends on the quality of its implementation (Albani, 2024).

Although the number of MSMEs in Pangkalpinang City has shown an increasing trend over the years, field realities reveal that a considerable number of business actors face difficulties and eventually cease operations. Intensifying competition, limited working capital, weak financial management, and low adaptability to digital marketing are dominant factors contributing to the inability of some MSMEs to sustain their businesses in the long term. In addition, fluctuations in purchasing power and changes in consumer behavior further increase the risk of revenue instability, particularly for micro-enterprises in the culinary and retail trade sectors. This condition indicates that the quantitative growth in the number of MSMEs does not necessarily reflect qualitative business sustainability. Therefore, strategies to strengthen competitiveness and innovation are essential to ensure that MSMEs not only grow in number but also sustain and develop over time.

Previous studies have extensively examined the effect of digital marketing on sales performance or customer satisfaction. Amanah (2025) found that digital marketing strategies have a positive effect on increasing MSME sales. Similarly, a study by Budianto and Defrizal (2025) revealed that product innovation and digital marketing strategies significantly influence customer satisfaction in culinary MSMEs.



However, most of these studies focus primarily on direct relationships between variables without comprehensively examining the role of intervening variables. Although Nahdiyah and Murtadlo (2025) examined customer satisfaction, it was not specifically positioned as a mediating variable in relation to business success. Furthermore, studies that specifically investigate the context of culinary MSMEs in archipelagic regions such as Pangkalpinang remain relatively limited. Most existing research has been conducted in large cities with different market characteristics (Halik, 2024).

Thus, a research gap exists both in terms of geographical context and conceptual models. There is still limited research that simultaneously examines the influence of digital marketing strategies and product innovation on MSME success, with customer satisfaction as an intervening variable, particularly in the context of regional culinary MSMEs.

The urgency of this study lies in the need for an empirical model grounded in marketing and consumer behavior theories that can explain the relationships among variables more comprehensively. This study aims to analyze the effect of digital marketing strategies and product innovation on the success of culinary MSMEs in Pangkalpinang City, with customer satisfaction as an intervening variable.

Based on the description of the problems and the urgency of the study, this research seeks to further explore how marketing strategies and product innovation influence the success or sustainability of MSMEs in Pangkalpinang City, entitled *“The Effect of Digital Marketing Strategies and Product Innovation on the Success of Culinary MSMEs in Pangkalpinang City with Customer Satisfaction as an Intervening Variable.”*

The development of digitalization in the MSME sector has driven significant changes in marketing strategies and business competition patterns, particularly in the culinary sector. In Pangkalpinang City, the rapid growth of culinary MSMEs has been accompanied by increasing competition based on digital platforms such as social media and online delivery services. This condition requires business actors to optimize digital marketing strategies and continuously innovate their products in order to maintain competitiveness and business sustainability.

However, empirical evidence indicates that the utilization of digital marketing has not been fully optimal, product innovation has not been carried out consistently, and the level of customer satisfaction remains varied. In fact, theoretically, customer satisfaction plays a crucial role in determining business



success through customer loyalty and repeat purchases. In addition, previous studies have shown inconsistent findings regarding the direct effects of digital marketing strategies and product innovation on business success, as well as the limited number of studies examining customer satisfaction as an intervening variable in the context of regional culinary MSMEs.

Based on the above description, the research questions in this study are formulated as follows: Does digital marketing strategy have a significant effect on customer satisfaction in culinary MSMEs in Pangkalpinang City. Does product innovation have a significant effect on customer satisfaction in culinary MSMEs in Pangkalpinang City. Does digital marketing strategy have a significant effect on the success of culinary MSMEs in Pangkalpinang City. Does product innovation have a significant effect on the success of culinary MSMEs in Pangkalpinang City. Does customer satisfaction have a significant effect on the success of culinary MSMEs in Pangkalpinang City. Does customer satisfaction mediate the effect of digital marketing strategy on the success of culinary MSMEs in Pangkalpinang City. Does customer satisfaction mediate the effect of product innovation on the success of culinary MSMEs in Pangkalpinang City.

LITERATURE REVIEW

Digital Marketing Strategy

Digital transformation has shifted the marketing paradigm from conventional approaches to technology-based and online interactive systems. Digital marketing is defined as the application of digital technologies to create, communicate, and deliver value to customers through various platforms such as websites, search engines (SEO), social media, marketplaces, email marketing, and electronic word of mouth (e-WOM) (Chaffey & Ellis-Chadwick, 2019). In the context of culinary MSMEs, this strategy enables the expansion of market reach beyond geographical boundaries as well as greater cost efficiency in promotional activities.

Theoretically, digital marketing strategies can be explained through the development of the marketing mix within a digital context. Kotler and Keller (2016) emphasize that the marketing mix (product, price, place, promotion) has been adapted in the digital environment to become more interactive and data-driven. The promotion element has evolved into social media engagement, content marketing, influencer marketing, and search engine optimization (SEO). Meanwhile, e-WOM has become a crucial factor, as customer reviews and



recommendations on digital platforms significantly influence perceptions and purchasing decisions.

From an operational perspective, the indicators of digital marketing strategy include:

1. Interactivity, referring to the ability of business actors to establish two-way communication with consumers through comments, direct messages, or live features (Chaffey & Ellis-Chadwick, 2019).
2. Reach, which refers to the extent of product information distribution across various digital channels.
3. Content consistency, reflecting the continuity and uniformity of brand messaging.
4. Responsiveness, referring to the speed and accuracy of business actors in responding to customer inquiries or complaints.

Thus, theoretically, digital marketing strategies contribute to increasing brand awareness and shaping customer experience, which ultimately impacts customer satisfaction and business success.

Product Innovation

Product innovation is rooted in innovation theory introduced by Schumpeter. Schumpeter (1934) stated that innovation is the primary driving force of economic development through the creation of new combinations, such as new products, new methods of production, or new markets. In the context of MSMEs, innovation does not always refer to radical discoveries but can take the form of incremental innovation that enhances product value.

Drucker (1985) emphasized that innovation is an instrument of entrepreneurship used to create new resources or enhance the value potential of existing resources. In the culinary sector, product innovation can be manifested through flavor innovation, more attractive and hygienic packaging, menu variations, and improvements in the quality of raw materials. The dimensions of product innovation in this study include:

1. Flavor innovation, which creates sensory differentiation.
2. Packaging innovation, which enhances visual appeal and practical value.
3. Menu variation, which broadens consumer choices.
4. Quality of ingredients, which ensures product consistency and quality.

Theoretically, innovation plays a significant role in creating competitive advantage. Innovative products enable businesses to differentiate themselves



from competitors and enhance customers' perceived value. This is in line with the view that product differentiation is a key strategy in achieving competitive advantage in the market (Kotler & Keller, 2016).

Customer Satisfaction

Customer satisfaction in this study is explained through the Expectation–Confirmation Theory (ECT). Oliver (1980) proposed that satisfaction arises from the evaluation process between consumers' initial expectations and the actual performance of a product (disconfirmation). If performance exceeds expectations, positive confirmation occurs, resulting in satisfaction.

Bhattacharjee (2001) further developed the Expectation–Confirmation model in the context of continuance behavior, explaining that satisfaction influences repurchase intention (continuance intention). This model emphasizes that satisfaction not only affects short-term perceptions but also influences long-term loyalty and purchasing behavior. The indicators of customer satisfaction in this study include:

1. Expectation confirmation, referring to the alignment between expectations and actual experience.
2. Consumption experience, referring to perceptions of service and product quality.
3. Repurchase intention, referring to the tendency of customers to make repeat purchases.

Theoretically, customer satisfaction serves as a mediating mechanism between marketing strategies/product innovation and business success, as satisfaction drives customer loyalty and growth.

MSME Success

The success of MSMEs is not solely measured by financial aspects but also by non-financial indicators. Sampe (2022) explains that MSME performance can be measured through increased revenue, profit growth, market expansion, and operational efficiency. Meanwhile, non-financial indicators include customer loyalty, brand reputation, and business sustainability.

From a marketing management perspective, business success is the result of the integration between value creation and customer satisfaction (Kotler & Keller, 2016). MSMEs that are able to effectively manage digital marketing strategies and product innovation will enhance customer satisfaction, which in turn leads to increased revenue and business sustainability.



Theoretical Relationship Between Variables

Thus, the relationships among variables in this study can be explained as follows:

1. Digital marketing strategies enhance interaction and customer perceived value.
2. Product innovation creates differentiation and competitive advantage.
3. Customer satisfaction acts as a mediator that strengthens the influence of these variables on MSME success.

This theoretical model demonstrates that the success of culinary MSMEs in the digital era is the result of an integrative relationship between technology-based marketing strategies, continuous product innovation, and the creation of satisfying customer experiences.

RESEARCH METHOD

Type and Research Approach

This study employs an explanatory quantitative approach. The quantitative approach aims to test hypotheses and explain causal relationships between variables through statistical analysis (Sugiyono, 2019). The explanatory design is used because this study focuses on examining the effect of digital marketing strategies and product innovation on MSME success, with customer satisfaction as an intervening variable.

According to Creswell (2014), explanatory quantitative research emphasizes theory testing through the measurement of variables and the analysis of relationships among variables using standardized instruments. Therefore, this study adopts a survey design, involving data collection through structured questionnaires to obtain numerical data that can be statistically analyzed.

Research Location and Time

This research was conducted on active and registered culinary MSMEs in Pangkalpinang City. The selection of this location is based on the significant growth of culinary MSMEs and the increasing use of digital media in marketing activities.

The study was carried out during the data collection period from April to August 2026, covering the stages of instrument development, questionnaire distribution, data processing, and analysis of research results.



Population and Sample

The population in this study consists of all active and registered culinary MSMEs in Pangkalpinang City. Population is defined as a generalization area consisting of objects or subjects that have certain characteristics to be studied and from which conclusions are drawn (Sugiyono, 2019).

The sampling technique used is purposive sampling, which is a sampling method based on specific considerations, such as MSMEs that have utilized digital media in their marketing activities for at least one year and have established regular customers.

The sample size was determined using the Slovin formula, as the population exceeds 500. The total population in this study is 6,845 culinary MSMEs (Hair et al., 2019). Based on the Slovin calculation, the sample size obtained is 99.8, which is rounded up to 100 respondents. Therefore, the total sample in this study consists of 100 respondents.

Operational Definition of Variables

Operational definitions aim to clarify the indicators used to measure each variable so that they can be empirically tested (Ghozali, 2021).

Table 1.
Operationalization of Variables

Variable	Indicators	Theoretical Sources
X1 Digital Marketing Strategy	Interactivity, Reach, Content consistency, Responsiveness	Chaffey & Ellis-Chadwick (2019); Kotler & Keller (2016)
X2 Product Innovation	Flavor innovation, Packaging innovation, Menu variation, Quality of ingredients	Schumpeter (1934); Drucker (1985)
Z Customer Satisfaction	Expectation confirmation, Consumption experience, Repurchase intention	Oliver (1980); Bhattacharjee (2001)
Y MSME Success	Revenue growth, Customer growth, Customer loyalty, Business sustainability	Sampe (2022); Kotler & Keller (2016)

Source: Processed by the researcher, 2026



Data Collection Techniques

Data collection techniques in this study were conducted through:

1. Structured Questionnaire

The primary instrument consists of a set of closed-ended statements measured using a Likert scale. According to Sugiyono (2019), questionnaires are effective for measuring respondents' perceptions, attitudes, and opinions quantitatively.

2. Documentation

This method is used to obtain supporting data such as the number of MSMEs, business profiles, and revenue reports.

3. Limited Observation

This technique is used to validate the implementation of digital marketing strategies directly through MSMEs' social media accounts or marketplace platforms.

Data Analysis Technique

Data analysis in this explanatory quantitative study is conducted in a systematic and sequential manner to ensure the accuracy of hypothesis testing and the validity of the structural model. The analysis stages refer to multiple linear regression analysis or Structural Equation Modeling based on Partial Least Squares (SEM-PLS), in accordance with the complexity of the mediation model being tested.

1. Instrument Validity and Reliability Testing

The initial stage of analysis involves testing the quality of the research instruments. A good instrument must meet the criteria of validity and reliability to accurately measure the constructs. According to Ghazali (2021), validity testing in regression is conducted by comparing the calculated r -value (r -count) with the r -table value, where an indicator is considered valid if r -count $>$ r -table at a 5% significance level.

In the SEM-PLS approach, validity is measured through:

- a. Convergent validity, with criteria of factor loadings $>$ 0.70 and Average Variance Extracted (AVE) $>$ 0.50.
- b. Discriminant validity, which can be assessed through cross-loading values or the Fornell-Larcker criterion, where the square root of AVE must be greater than the correlations between constructs (Hair et al., 2019).



Reliability testing is conducted using Cronbach's Alpha and Composite Reliability (CR). An instrument is considered reliable if the values of Cronbach's Alpha and CR are greater than 0.70 (Ghozali, 2021; Hair et al., 2019). Composite Reliability is considered more appropriate in SEM-PLS because it does not assume tau-equivalence among indicators.

This stage ensures that each indicator of the variables—digital marketing strategy, product innovation, customer satisfaction, and MSME success—can consistently represent their respective latent constructs.

2. Classical Assumption Tests

If the analysis employs multiple linear regression, classical assumption tests are required to ensure that the model is unbiased and satisfies the criteria of the Best Linear Unbiased Estimator (BLUE). According to Ghozali (2021), the classical assumption tests include:

a. Normality Test

This test aims to determine whether the residual data are normally distributed. It can be conducted using the Kolmogorov–Smirnov test or by examining the P–P Plot graph. The data are considered normally distributed if the significance value is greater than 0.05.

b. Multicollinearity Test

This test aims to determine whether there is a high correlation among independent variables. The model is considered free from multicollinearity if the Tolerance value is greater than 0.10 and the Variance Inflation Factor (VIF) is less than 10.

c. Heteroscedasticity Test

This test examines whether there is inequality in the variance of residuals. It can be conducted using the Glejser test or by observing the scatterplot pattern. A good model shows no specific pattern (random distribution).

These tests are essential to ensure that the regression coefficient estimates are not affected by statistical bias.

3. Path Analysis / SEM-PLS

This study involves a mediating variable; therefore, it requires analysis of both direct and indirect relationships among variables.

a. Path Analysis

Path analysis is used to examine causal relationships among variables based on theoretical assumptions. This method allows researchers to calculate both direct effects and indirect effects among variables.



4. Mediation Test

The mediation test aims to determine whether customer satisfaction acts as an intervening variable in the relationship between digital marketing strategy and product innovation on MSME success. According to Ghozali (2021), mediation testing can be conducted through:

a. Bootstrapping (in SEM-PLS)

This resampling technique produces t-statistics and p-values for indirect effects. Mediation is considered significant if the p-value is less than 0.05.

b. Sobel Test (in regression analysis)

This test is used to examine the significance of indirect effects by calculating the z-value. If the z-value is greater than 1.96 ($\alpha = 5\%$), the mediation effect is considered significant.

Mediation can be categorized as:

- 1) Full mediation, if the direct effect becomes insignificant after the mediator is included.
- 2) Partial mediation, if the direct effect remains significant but decreases after the mediator is included.

5. Coefficient of Determination (R^2)

The coefficient of determination is used to measure the ability of independent variables to explain the dependent variable. According to Ghozali (2021), the R^2 value indicates the proportion of variance in the dependent variable that can be explained by the model. The higher the R^2 value, the better the predictive capability of the model.

In this study:

- a. The R^2 value for the customer satisfaction variable indicates the ability of digital marketing strategy and product innovation to explain customer satisfaction.
- b. The R^2 value for MSME success indicates the contribution of all variables to business performance.

6. F-Test (Simultaneous Test)

The F-test is used to determine whether independent variables simultaneously affect the dependent variable. According to Ghozali (2021), the F-test evaluates the overall feasibility of the regression model. The decision criteria are as follows:



- a. If the significance value is less than 0.05, then H_0 is rejected, meaning that the independent variables simultaneously have a significant effect on the dependent variable.
- b. If the calculated F-value (F-count) is greater than the F-table value, the model is considered significant.

In the context of this study, the F-test is used to:

- a. Examine the simultaneous effect of digital marketing strategy and product innovation on customer satisfaction.
- b. Examine the simultaneous effect of digital marketing strategy, product innovation, and customer satisfaction on MSME success.

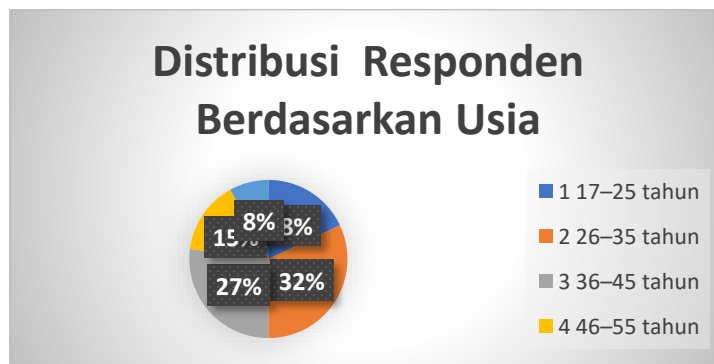
The F-test also indicates whether the constructed regression model is appropriate for prediction purposes

RESULTS AND DISCUSSION

This study was conducted on culinary MSME actors in Pangkalpinang City, involving a total of 100 respondents. Data were collected through a questionnaire based on a Likert scale, measuring the variables of digital marketing strategy, product innovation, customer satisfaction, and MSME success.

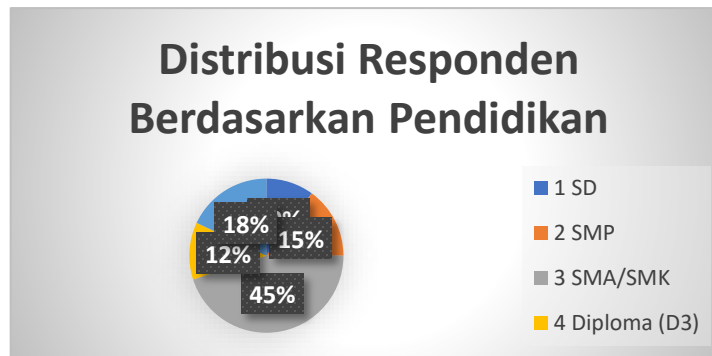
Respondent Characteristics

Respondent Characteristics Based on Age



Based on the diagram above, the majority of respondents fall within the 26–35 age range (32%), indicating that culinary MSME actors are dominated by individuals in the productive age group. This suggests that business actors within this age range tend to be more adaptive to technological developments, particularly in the implementation of digital marketing strategies.

Respondent Characteristics Based on Last Education Level



Based on the diagram above, it is shown that the majority of respondents have a senior high school/vocational school (SMA/SMK) educational background (45%). This indicates that culinary MSME actors do not necessarily come from higher education backgrounds but are still capable of managing their businesses independently. This finding suggests that MSME success is more influenced by practical experience and skills rather than formal education level.

Instrument Testing

Validity Test

Item	Corrected Item Correlation	r-Table	Description
X1_1 – X1_8	0.45 – 0.72	0.196	Valid
X2_1 – X2_8	0.48 – 0.74	0.196	Valid
Z1 – Z6	0.51 – 0.76	0.196	Valid
Y1 – Y8	0.49 – 0.78	0.196	Valid

Based on the table above, the results of the validity test indicate that all statement items have correlation values greater than the r-table value (0.196), thus all items are declared valid. This means that the instrument is capable of accurately measuring the constructs under study.

Reliability Test Results

Variable	Cronbach's Alpha	Number of Items
X1	0.883	8
X2	0.871	8
Z	0.864	6
Y	0.892	8

Based on the reliability test results, the Cronbach's Alpha values for all variables are above 0.60. Therefore, it can be concluded that the research



instrument has a high level of internal consistency and is suitable for use in this study.

Classical Assumption Test Results (Model I)

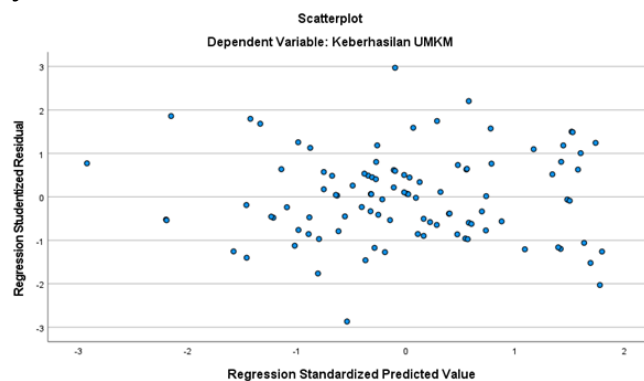
Normality Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual	
N		100	
Normal Parameters ^{a,b}	Mean	.0000000	
	Std. Deviation	2.13776647	
Most Extreme Differences	Absolute	.055	
	Positive	.048	
	Negative	-.055	
Test Statistic		.055	
Asymp. Sig. (2-tailed) ^c		.200 ^d	
Monte Carlo Sig. (2-tailed) ^e	Sig.	.630	
	99% Confidence Interval	Lower Bound	.618
		Upper Bound	.643

Based on the results of the normality test using the One-Sample Kolmogorov–Smirnov Test, the Asymp. Sig. (2-tailed) value is 0.200, which is greater than 0.05. This indicates that the residual data are normally distributed. This result is further supported by the Monte Carlo Sig. value of 0.630. Therefore, it can be concluded that the regression model satisfies the normality assumption.

Heteroscedasticity Test Results



Based on the results of the heteroscedasticity test using a scatterplot, it can be observed that the residual points are randomly distributed and do not form any specific pattern, spreading both above and below the zero value on the Y-axis. This indicates that heteroscedasticity is not present, and therefore the regression model satisfies the assumption of homoscedasticity.



Multicollinearity Test Results

Variable	Tolerance	VIF
X1	0.481	2.078
X2	0.452	2.212
Z	0.519	1.925

Based on the results of the multicollinearity test, the tolerance values for all variables are greater than 0.10 and the Variance Inflation Factor (VIF) values are less than 10. This indicates that there is no multicollinearity in the regression model. Therefore, the independent variables are not highly correlated with each other, and the model is appropriate for further analysis.

Regression Analysis Results (Path Analysis)

Regression Results for Model I

Coefficients^a

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	
1 (Constant)	0.987	2.454	—	0.402
Digital Marketing	0.279	0.047	0.460	5.901
Product Innovation	0.350	0.056	0.486	6.226

^a Dependent Variable: Customer Satisfaction

Based on the results of the multiple linear regression analysis in Model I, the regression equation is as follows:

$$Z = 0.987 + 0.279X_1 + 0.350X_2$$

1. The constant value of 0.987 indicates that when digital marketing (X_1) and product innovation (X_2) are assumed to be constant or equal to zero, the level of customer satisfaction (Z) is 0.987.
2. The digital marketing variable (X_1) has a regression coefficient of 0.279 with a significance value of 0.000 (< 0.05). This indicates that digital marketing has a positive and significant effect on customer satisfaction. In other words, the better the implementation of digital marketing strategies, the higher the level of customer satisfaction.
3. The product innovation variable (X_2) has a regression coefficient of 0.350 with a significance value of 0.000 (< 0.05). This shows that product



innovation also has a positive and significant effect on customer satisfaction. Thus, higher levels of product innovation lead to increased customer satisfaction.

- 4. Based on the standardized coefficients (Beta), the product innovation variable (0.486) has a more dominant influence compared to digital marketing (0.460) on customer satisfaction.

Overall, these results indicate that both independent variables—digital marketing and product innovation—have a significant partial effect on customer satisfaction. Therefore, the regression model is considered appropriate for explaining the relationships among variables in this study.

Coefficient of Determination (R²) for Model I

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.643	0.413	0.401	2.160

- a. Predictors: (Constant), Product Innovation, Digital Marketing
- b. Dependent Variable: Customer Satisfaction

Based on the Model Summary results, the R Square value is 0.413, which indicates that digital marketing (X₁) and product innovation (X₂) explain 41.3% of the variance in customer satisfaction (Z), while the remaining 58.7% is influenced by other variables outside the research model.

Regression Results for Model II

Coefficients^a

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	
1 (Constant)	3.263	2.894	—	1.127
Digital Marketing	0.210	0.065	0.249	3.223
Product Innovation	0.282	0.078	0.282	3.601
Customer Satisfaction	0.665	0.120	0.479	5.559

- a. Dependent Variable: MSME Success

Based on the results of the multiple linear regression analysis in Model II, the regression equation is as follows:



$$Y = 3.263 + 0.210X_1 + 0.282X_2 + 0.665Z$$

1. The constant value of 3.263 indicates that when digital marketing (X_1), product innovation (X_2), and customer satisfaction (Z) are assumed to be constant or equal to zero, the level of MSME success (Y) is 3.263.
2. The digital marketing variable (X_1) has a regression coefficient of 0.210 with a significance value of 0.002 (< 0.05). This indicates that digital marketing has a positive and significant effect on MSME success. In other words, better implementation of digital marketing strategies leads to higher MSME success.
3. The product innovation variable (X_2) has a regression coefficient of 0.282 with a significance value of 0.001 (< 0.05). This shows that product innovation also has a positive and significant effect on MSME success. Thus, higher levels of product innovation contribute to greater MSME success.
4. The customer satisfaction variable (Z) has a regression coefficient of 0.665 with a significance value of 0.000 (< 0.05). This indicates that customer satisfaction has a positive and significant effect on MSME success. In other words, higher levels of customer satisfaction lead to increased MSME success.
5. Based on the standardized coefficients (Beta), the customer satisfaction variable (0.479) has the most dominant influence compared to digital marketing (0.249) and product innovation (0.282) on MSME success.

Overall, these results indicate that digital marketing, product innovation, and customer satisfaction each have a significant partial effect on MSME success. Therefore, the regression model is considered appropriate for explaining the relationships among variables in this study.

Coefficient of Determination (R^2) for Model II

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.763	0.582	0.569	2.545

- a. Predictors: (Constant), Customer Satisfaction, Digital Marketing, Product Innovation
- b. Dependent Variable: MSME Success

Based on the Model Summary results, the R Square value is 0.582, indicating that digital marketing (X_1), product innovation (X_2), and customer



satisfaction (Z) explain 58.2% of the variance in MSME success (Y), while the remaining 41.8% is influenced by other variables outside the research model.

Direct Effects

Relationship	Coefficient Value
$X_1 \rightarrow Z$	0.373
$X_2 \rightarrow Z$	0.466
$X_1 \rightarrow Y$	0.210
$X_2 \rightarrow Y$	0.282
$Z \rightarrow Y$	0.499

Direct effects represent the relationships between variables without involving the intervening variable.

1. Effect of Digital Marketing (X_1) on Customer Satisfaction (Z)
The coefficient value of 0.373 indicates that digital marketing has a positive effect on customer satisfaction. This means that the better the digital marketing strategy implemented, the higher the level of customer satisfaction. This effect is considered moderately strong in shaping customer satisfaction.
2. Effect of Product Innovation (X_2) on Customer Satisfaction (Z)
The coefficient value of 0.466 indicates that product innovation has a positive effect on customer satisfaction. This implies that higher levels of product innovation lead to increased customer satisfaction. This effect is stronger than that of digital marketing, making product innovation the more dominant factor in enhancing customer satisfaction.
3. Effect of Digital Marketing (X_1) on MSME Success (Y)
The coefficient value of 0.210 indicates that digital marketing has a positive effect on MSME success. This means that improvements in digital marketing strategies contribute to increased business success, although the effect is relatively smaller compared to other variables.
4. Effect of Product Innovation (X_2) on MSME Success (Y)
The coefficient value of 0.282 indicates that product innovation has a positive effect on MSME success. This suggests that more innovative products lead to higher business success. This effect is stronger than the influence of digital marketing on business success.
5. Effect of Customer Satisfaction (Z) on MSME Success (Y)
The coefficient value of 0.499 indicates that customer satisfaction has a positive and the most dominant effect on MSME success. This means that



higher levels of customer satisfaction significantly enhance MSME success.

Indirect Effects

The calculation of indirect effects is presented as follows:

Relationship	Calculation	Result
$X_1 \rightarrow Z \rightarrow Y$	0.373×0.499	0.186
$X_2 \rightarrow Z \rightarrow Y$	0.466×0.499	0.232

Thus, the results of both direct and indirect effects are summarized in the table below:

Variable	Direct Effect	Indirect Effect	Total Effect
X_1	0.210	0.186	0.396
X_2	0.282	0.232	0.514

Based on the results of the indirect effect calculations, it is evident that digital marketing (X_1) and product innovation (X_2) not only have direct effects on MSME success (Y), but also indirect effects through customer satisfaction (Z) as an intervening variable.

1. Digital Marketing (X_1)

Digital marketing has a direct effect on MSME success of 0.210 and an indirect effect through customer satisfaction of 0.186. Therefore, the total effect of digital marketing on MSME success is 0.396. This indicates that part of the influence of digital marketing on MSME success occurs through increased customer satisfaction, meaning that customer satisfaction acts as a mediating variable that strengthens this relationship.

2. Product Innovation (X_2)

Product innovation has a direct effect on MSME success of 0.282 and an indirect effect through customer satisfaction of 0.232. The total effect of product innovation on MSME success is 0.514. This value is higher than that of digital marketing, indicating that product innovation is the most dominant factor in enhancing MSME success, both directly and indirectly through customer satisfaction.

The Effect of Digital Marketing Strategy on Customer Satisfaction

The findings of this study indicate that digital marketing strategy has a positive and significant effect on customer satisfaction. However, from a more critical perspective, this influence is not merely direct but is also shaped by the quality of digital interactions that are capable of creating customer experience.



From the perspective of modern marketing theory, Philip Kotler emphasizes that digital marketing is not merely a promotional tool, but also a means of building long-term relationships with customers (Kotler & Keller, 2016). This view is reinforced by Dave Chaffey, who states that the success of digital marketing is determined by engagement and responsiveness (Chaffey & Ellis-Chadwick, 2019).

These findings are also supported by previous studies showing that digital marketing has a significant effect on customer satisfaction, particularly among MSMEs that utilize social media as a promotional medium (Putri & Hidayat, 2022). This indicates that the utilization of digital technology is a crucial factor in creating customer satisfaction.

However, in the context of MSMEs, the effectiveness of digital marketing is often not optimal due to limitations in digital literacy and content consistency. A study by Pradiani (2017) found that many MSMEs have not been able to strategically utilize social media, resulting in a limited impact on customer satisfaction. Therefore, although the findings of this study are significant, their practical implementation largely depends on the digital capabilities of business actors.

The Effect of Product Innovation on Customer Satisfaction

The results of this study show that product innovation has a more dominant influence on customer satisfaction compared to digital marketing. This finding confirms that in the culinary sector, the primary value perceived by customers remains centered on the product itself.

This finding is consistent with innovation theory proposed by Joseph Schumpeter, who argued that innovation is the key driver in creating added value for consumers (Schumpeter, 1934). Furthermore, Peter Drucker emphasized that innovation is a primary source of competitive advantage in business (Drucker, 1985).

This result is also in line with research by Hadiyati (2015), which states that product innovation significantly affects customer satisfaction in MSMEs, particularly in enhancing product attractiveness and differentiation. However, from a critical standpoint, innovation that is not sustained may reduce product quality consistency, which can ultimately have a negative impact on customer satisfaction. Therefore, product innovation must be strategically directed and based on market needs, rather than merely offering variations without a clear strategy.



The Effect of Digital Marketing Strategy on MSME Success

The results of this study indicate that digital marketing has a significant effect on MSME success, but with relatively lower strength compared to other variables. This suggests that digital marketing functions more as an enabler rather than a primary determinant of business success.

According to Kotler and Keller (2016), digital marketing serves to enhance visibility and market access. However, without being supported by product quality and customer satisfaction, its impact on business performance remains limited.

These findings are also supported by previous research conducted by Wardhana (2015), which shows that digital marketing influences the competitive advantage of MSMEs, but its contribution largely depends on the ability of business actors to consistently manage their marketing strategies. This indicates that MSME digitalization in Indonesia is still at an early stage of adoption and has not yet fully become a primary driver of business success.

The Effect of Product Innovation on MSME Success

Product innovation is proven to have a significant effect on MSME success. This finding indicates that in the highly competitive culinary business sector, product differentiation is a key factor in attracting and retaining customers.

According to Schumpeter (1934), innovation is the driving force of economic growth, while Drucker (1985) emphasizes that innovation is a source of business opportunities. In the context of MSMEs, product innovation enables businesses to survive and grow amid increasingly intense competition.

These results are also consistent with research conducted by Suryana (2013), which shows that product innovation plays a strategic role in improving MSME performance. However, from a critical perspective, innovation without being supported by appropriate marketing strategies may lead to product failure in the market. Therefore, product innovation must be integrated with marketing strategies to generate maximum impact on business success.

The Effect of Customer Satisfaction on MSME Success

The results of this study indicate that customer satisfaction is the most dominant variable influencing MSME success. This finding confirms that business success is largely determined by the ability to create value and deliver positive customer experiences.



According to Richard Oliver, customer satisfaction is an evaluation of the congruence between expectations and perceived performance (Oliver, 1980). High levels of satisfaction encourage customer loyalty and repeat purchases (Bhattacharjee, 2001).

The findings of this study are also consistent with research conducted by Tjiptono (2014), which demonstrates that customer satisfaction plays a crucial role in fostering loyalty and business sustainability. From a critical perspective, this indicates that MSME success is not only determined by internal factors but also by customer perceptions as external stakeholders.

The Role of Customer Satisfaction as an Intervening Variable

The results of this study show that customer satisfaction acts as a significant intervening variable. This means that both digital marketing and product innovation do not directly enhance MSME success, but rather influence it through increased customer satisfaction.

This finding reinforces the concept of value-based marketing, where business success is determined by the ability to create value perceived by customers (Kotler & Keller, 2016). The results are also supported by research conducted by Ferdinand (2014), which shows that customer satisfaction often serves as a mediating variable in the relationship between marketing strategies and business performance.

Overall, the findings indicate that digital marketing strategies and product innovation have significant effects on both customer satisfaction and MSME success. Customer satisfaction is proven to be a key variable that mediates this relationship, making it a critical factor in determining business success.

CONCLUSION

Based on the results of data analysis and hypothesis testing, the following conclusions can be drawn:

1. Digital marketing strategy has a positive and significant effect on customer satisfaction. This indicates that the better the implementation of digital marketing, the higher the level of customer satisfaction.
2. Product innovation has a positive and significant effect on customer satisfaction. This means that higher levels of product innovation lead to increased customer satisfaction.



3. Digital marketing strategy has a positive and significant effect on MSME success. This shows that digital marketing contributes to improving business performance and success.
4. Product innovation has a positive and significant effect on MSME success. This indicates that product innovation is an important factor in enhancing business success.
5. Customer satisfaction has a positive and significant effect on MSME success. This demonstrates that customer satisfaction is a key determinant of business success.
6. Digital marketing strategy has a positive effect on MSME success through customer satisfaction. This indicates that customer satisfaction mediates the relationship between digital marketing and MSME success.
7. Product innovation has a positive effect on MSME success through customer satisfaction. This means that customer satisfaction also acts as an intervening variable in the relationship between product innovation and MSME success.

Overall, the results of this study indicate that digital marketing strategies and product innovation play important roles in enhancing MSME success, both directly and indirectly through customer satisfaction. Customer satisfaction is proven to be the most dominant factor as well as the primary mediating variable in achieving business success. Therefore, MSME success is not solely determined by marketing strategies and innovation, but is highly dependent on the ability of businesses to create customer satisfaction as the central focus of their operations.

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