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THE INFLUENCE OF INNOVATION, DIGITALIZATION, AND SERVICE QUALITY ON CUSTOMER SATISFACTION OF MSMES IN MEDAN CITY

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Abstract
This study aims to examine and analyze the influence of Innovation, Digitalization, and Service Quality on Customer Satisfaction of MSMEs in Medan City. The research method used is a quantitative method with a descriptive quantitative approach, classified as explanatory research. The population of this study consists of mobile coffee shop MSME consumers in Medan City. The research sample includes 100 respondents selected using the accidental sampling technique. The data analysis method employed is multiple linear regression. The F-test results, with an F-calculated value of 381.717 > F-table of 2.70 and a significance level of < 0.05, indicate that Innovation, Digitalization, and Service Quality simultaneously have a significant influence on Customer Satisfaction of MSMEs in Medan City. The t-test results show that Innovation has a positive and significant influence on Customer Satisfaction, Digitalization has a positive and significant influence on Customer Satisfaction, and Service Quality has a positive and significant influence on Customer Satisfaction. The coefficient of determination analysis yielded an Adjusted R^2 value of 0.920, meaning that the variation in the variables of Innovation, Digitalization, and Service Quality explains 92.0% of Customer Satisfaction, while the remaining 8.0% is explained by other variables.

Keywords: Innovation, Digitalization, Service Quality, Customer Satisfaction.

1. Introduction

The Micro, Small, and Medium Enterprises (MSME) sector plays a crucial role in the economic growth of North Sumatra. However, this sector currently faces significant structural and operational challenges that hinder its potential. Fundamentally, an MSME is a type of productive business operated by an individual, group, family, or small business entity that meets the criteria for a micro-enterprise. Thus, MSMEs can be defined as businesses managed by people from middle to lower income backgrounds. Micro, Small, and Medium Enterprises play an essential role in creating employment opportunities, providing extensive economic services to the community, and facilitating the distribution and increase of income (Alhassan, 2025).

To provide a more comprehensive overview of the key challenges hindering the growth of MSMEs in North Sumatra, the following table identifies the primary issues summarized from recent statistical data and reports:

Table 1. Identification of Key Challenges Facing MSMEs in North Sumatra

Problem Aspect	Current Condition	Impact on MSMEs	Data & News Sources
Financial Access	Only 7.7% have access to financing	Limited capital for innovation & business expansion	(Diskop UKM Sumut, 2024; Antara News, 2025)
Technology Adoption	Only 19% have adopted technology	Inefficient operations & lagging behind market trends	(Diskop UKM Sumut, 2024; Antara News, 2025)
Digital Market Access	Only 4% have access to digital markets	Limited market reach & low competitiveness	(Diskop UKM Sumut, 2024; Antara News, 2025)

Source: (Diskop UKM Sumut, 2024; Antara News, 2025)

Based on data from the Department of Cooperatives and SMEs of North Sumatra (2024), MSMEs in the region are still struggling with limited access to finance (only 7.7%), low technology adoption (19%), and restricted access to digital markets (only 4%). These limitations result in inefficient operations, narrow market reach, and low competitiveness, as highlighted in reports by (Antara News, 2025; Diskop UKM Sumut, 2024).

Amidst these challenges, the development of digital entrepreneurship and the adoption of new technologies are no longer just an option, but a necessity for business survival. As the government encourages MSMEs to "scale up" through digitalization such as through initiatives like the Digital Entrepreneurship Academy (DEA) and Fast Track Youngpreneur (FYP) 2025 there is an urgent need to understand how these transformations translate into tangible business performance, particularly in terms of their impact on customers.

Customer satisfaction remains the key indicator of MSME success in a competitive market. In the context of Medan City, where consumer behavior is rapidly shifting toward digital-first interactions, MSME players must be able to leverage three primary drivers: Innovation, Digitalization, and Service Quality. Innovation allows businesses to differentiate their offerings; Digitalization improves operational efficiency and customer engagement; and Service Quality ensures that customer expectations are met or even exceeded.

Although the government and academic institutions have been actively promoting digital literacy and technical training in Medan, there remains a gap in empirical evidence regarding the extent to which these specific factors Innovation, Digitalization, and Service Quality simultaneously influence customer satisfaction among MSMEs. Given the high percentage of MSMEs still lagging in technology adoption (81% have not fully adopted digital tools), it is crucial to analyze how businesses that successfully implement these strategies are perceived by their customers.

Therefore, this study is conducted to bridge this gap by examining the effect of these variables on customer satisfaction. By analyzing these relationships, this research aims to provide evidence-based insights that can help MSMEs in Medan City not only navigate current digitalization challenges but also thrive by delivering superior value to their customers.

Innovation is the ability of MSMEs to create or adapt new ideas, products, or services to remain relevant to the market (Azzahra & Sabilla, 2024; Barney, 1991).

Digitalization is the process of transforming business systems from manual processes to digital technology-based ones, such as the utilization of the internet, applications, and social media. Another critical factor to consider is service quality. Service quality refers to the level of service provided by MSMEs to customers, which directly influences consumer satisfaction and loyalty (Bessie & Suki, 2023; Davis, 1989). Good service is a decisive factor in customer satisfaction, as customers feel satisfied when they receive responsive service that aligns with their needs (Deviastri & Annisa; 2022; Gultom, 2022).

Based on the background above, this research aims to analyze the "Impact of Innovation, Digitalization, and Service Quality on Customer Satisfaction in MSMEs in Medan City." The results of this study are expected to contribute to the development of MSMEs in Medan City and serve as a valuable source of information for MSME owners to improve customer satisfaction levels. This is essential, as customer satisfaction has significant potential to increase customer loyalty.

2. Theoretical Background

2.1. Theory of the Influence of Innovation

Innovation can have a positive impact on MSMEs in Medan City, particularly regarding customer satisfaction, business success, and competitive advantage. Furthermore, innovation helps MSMEs build a Unique Selling Point (USP) for their products. Innovation is the process of creating new value through the development of better products, services, or processes. According (Hadita & Maulana, 2024; Hong & Joung, 2023) effective innovation can enhance customer satisfaction (Komariah et al., 2022) suggest that MSMEs that engage in innovation tend to achieve higher levels of customer satisfaction.

2.2 Digitalization

Digitalization is the process of converting information from analog to digital formats, which includes the use of information technology to enhance operational efficiency. According to (Kotler & Keller, 2022), digitalization can assist MSMEs in expanding their market reach and improving interactions with customers. Furthermore, (Kotler & Armstrong, 2022) suggest that MSMEs that adopt digitalization can enhance customer satisfaction through faster and more efficient services.

2.3 Service Quality

Service quality is a customer's assessment of how well a company provides its services. According to (Kumar et al., 2022; Maharani & Muhtarom, 2024; Mahmudah & Muhtarom, 2024) service quality can be measured through five dimensions: reliability, responsiveness, assurance, empathy, and tangibles. The Influence of Service Quality on Customer Satisfaction High quality service significantly contributes to customer satisfaction. According to (Moh et al., 2024; Moreira et al., 2024) satisfied customers are more likely to reuse services and recommend them to others.

2.4 Customer Satisfaction

Customer satisfaction is the feeling of pleasure or disappointment that arises after comparing the received performance of a product or service against one's expectations. According to (Oliver; 1999; Paramitha et al., 2022), customer satisfaction is the key to customer retention and increasing profitability. According to (Parasuraman et al., 1998; Putri, 2024) several factors influence customer satisfaction, including innovation, digitalization, and service quality. These three factors are interconnected and can significantly influence a customer's perception of a product or service (Ramdani et al., 2023; Rezkina & Nuryani, 2026).

2.5 Innovation has a significant impact on customer satisfaction

Innovation acts as a crucial determinant in establishing sustainable competitive advantages for MSMEs. Amidst the constantly evolving market dynamics in Medan City, the ability of business owners to innovate whether through developing new product features, improving operational processes, or updating service models enables them to meet increasingly complex customer expectations. When MSMEs consistently introduce novel and differentiated offerings compared to their competitors, it not only enhances the perceived value received by the customer but also creates a unique experience that triggers emotional satisfaction (Ramdani et al., 2023; Rezkina & Nuryani, 2026). Therefore, the higher the intensity and quality of innovation implemented by MSMEs, the greater the opportunity for business owners to achieve and surpass the expected levels of customer satisfaction.

H1: Innovation has a positive and significant effect on customer satisfaction among MSMEs in Medan City

2.6 Digitalization has a significant on customer satisfaction

Digitalization acts as a pivotal driver in modernizing business operations, directly impacting how customers perceive and interact with a brand. By transitioning from manual processes to digital systems such as utilizing e-commerce platforms, social media, and digital payment gateways MSMEs can significantly reduce service time, minimize human error, and provide a more seamless customer journey (Oliver; 1999; Paramitha et al., 2022).

When MSMEs implement digital tools, they gain the ability to offer service availability, personalized marketing, and faster response times. These improvements directly address common pain points for customers, thereby increasing their perceived value of the business. Consequently, businesses that effectively integrate digital technology are more likely to meet or exceed consumer expectations, leading to heightened levels of customer satisfaction and sustained competitive advantage in the digital-first economy of Medan City.

H2: Digitalization has a positive and significant effect on customer satisfaction.

2.7 Service Quality has a significant on customer satisfaction.

Service quality serves as a fundamental pillar in shaping customer perceptions and long-term satisfaction. By delivering services that are reliable, responsive, and empathetic, MSMEs are able to align their operations directly with consumer needs. According to the SERVQUAL model, when a business consistently demonstrates high standards characterized by professional assurance and tangible evidence of quality it reduces perceived risk and builds trust (Rohim et al., 2025; Sfina et al., 2025).

In the competitive landscape of Medan City, customers are increasingly discerning. They do not merely purchase a product; they evaluate the entire service experience, from the initial inquiry to post-purchase support. When MSMEs provide exceptional service quality, they fulfill and often exceed customer expectations, which creates a strong emotional bond. This positive experience directly translates into higher levels of customer satisfaction, as consumers feel their time and investment are respected. Therefore,

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superior service quality acts as a powerful catalyst for enhancing overall customer satisfaction, ultimately leading to greater customer retention and loyalty.

H3: Service Quality has a positive and significant effect on customer satisfaction.

2.8 Comprehensive Analysis of Simultaneous Effects

The simultaneous influence of innovation, digitalization, and service quality represents a holistic approach to customer satisfaction. In the context of Medan's competitive MSME landscape, these three variables do not operate in isolation; rather, they form an integrated ecosystem that dictates the customer's overall experience.

H4: Innovation, Digitalization, and Service Quality have a simultaneous (joint) positive and significant effect on customer satisfaction among MSMEs in Medan City.

3. Methods

3.1 Research Design

This study adopts an explanatory research design with a quantitative approach to examine and analyze the influence of Innovation, Digitalization, and Service Quality on Customer Satisfaction of MSMEs in Medan City. The quantitative approach is applied because the data collected are numerical in nature and analyzed using statistical methods to test the proposed hypotheses. The explanatory research design enables the examination of causal relationships between independent variables (Innovation, Digitalization, and Service Quality) and the dependent variable (Customer Satisfaction). This research is conducted in Medan Petisah, North Sumatra, with a research period spanning from August 2025 to February 2026.

3.2 Population and Sample

The population in this study consists of consumers who purchase mobile coffee (kopi keliling) in Medan City. The sampling technique employed is accidental sampling, where anyone who incidentally encounters the researcher can be selected as a respondent, provided that the individual is deemed appropriate as a data source. This technique was chosen due to the mobile nature of the coffee vendors and the need to reach consumers who are actively purchasing mobile coffee in Medan City. The sample size used in this study is 100 respondents, which is considered adequate for data analysis and meets the minimum requirement for reliable statistical inference.

3.3 Data Collection Techniques

Data were collected using an online questionnaire distributed via a link, directing respondents to the survey page. The questionnaire was designed to capture respondents' perceptions regarding innovation, digitalization, service quality, and customer satisfaction. The questionnaire utilizes a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). The online distribution method was selected for its efficiency in reaching a wide range of respondents at a relatively low cost. Data collection was conducted from August 2025 to February 2026.

3.4 Operational Definition and Variable Measurement

Table 2. Operational Definition and Measurement of Variables

Variable	Type	Definition	Indicators	Scale
Innovation (X_1)	Independent	The ability of MSMEs to create or adapt new ideas, products, or services to	Product innovation, process innovation,	Likert 1–5

Variable	Type	Definition	Indicators	Scale
		remain relevant to the market	service innovation, market innovation	
Digitalization (X_2)	Independent	The process of transforming business systems from manual processes to digital technology-based ones, such as the utilization of the internet, applications, and social media	Use of digital platforms, social media utilization, digital payment systems, online marketing	Likert 1–5
Service Quality (X_3)	Independent	The level of service provided by MSMEs to customers, which directly influences consumer satisfaction and loyalty	Reliability, responsiveness, assurance, empathy, tangibles	Likert 1–5
Customer Satisfaction (Y)	Dependent	The feeling of pleasure or disappointment that arises after comparing the received performance of a product or service against one's expectations	Expectation conformity, overall satisfaction, repurchase intention, recommendation willingness	Likert 1–5

Source: Developed for this research (2026)

3.5 Data Analysis Techniques

Data analysis in this study is conducted using multiple linear regression with the assistance of statistical software. The analysis stages include:

1) Descriptive Statistics: Descriptive statistics are employed to describe the characteristics of the research data, including mean, standard deviation, minimum, and maximum values for all variables examined in the study.
2) Classical Assumption Tests: Prior to hypothesis testing, classical assumption tests are conducted to ensure that the regression model satisfies the required assumptions, including normality test, multicollinearity test, and heteroscedasticity test.
3) Multiple Linear Regression Analysis: The regression model used in this study is formulated as follows:

$$Y = \alpha + \beta 1X1 + \beta 2X2 + \beta 3X3 + \varepsilon$$

Where:
Y = Customer Satisfaction
α = Constant
β_1–β_3 = Regression coefficients
X_1 = Innovation
X_2 = Digitalization
X_3 = Service Quality
ε = Error term

4) Hypothesis Testing: Hypothesis testing is conducted using:
   a. F-test to examine the simultaneous effect of Innovation, Digitalization, and Service Quality on Customer Satisfaction;
   b. t-test to determine the partial effect of each independent variable on Customer Satisfaction;

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c. Coefficient of Determination (R^2) to determine the model's ability to explain variations in Customer Satisfaction.

All hypothesis tests are conducted at a significance level of 5% ($p < 0.05$).

4. Results and Discussion

4.1 Descriptive Statistics

Table 1. Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Innovation	100	9	25	16.51	4.949	18.13
Digitalization	100	9	25	17.00	5.007	18.309
Service Quality	100	9	25	16.88	5.163	30.980
Customer Satisfaction	100	8	25	17.44	6.477	27.677

Customer Satisfaction holds the highest mean (17.44), followed by Digitalization (17.00), Service Quality (16.88), and Innovation (16.51). The mean values for all variables lie above the midpoint of the scale (>12.5 on a 5–25 range), indicating that respondents provided positive ratings for all four aspects. The largest standard deviation is found in Customer Satisfaction (6.477), which indicates a higher diversity of perceptions among respondents regarding this variable compared to the independent variables.

4.2 Validity and Reliability Test

Table 2. Validity Test

Variable	Item	r-value	r-table	Description
Innovation (X1)	X1.1	0,642	0,361	Valid
	X1.2	0,829	0,361	Valid
	X1.3	0,812	0,361	Valid
	X1.4	0,824	0,361	Valid
	X1.5	0,760	0,361	Valid
	X1.6	0,738	0,361	Valid
Digitalization (X2)	X2.1	0,747	0,361	Valid
	X2.2	0,742	0,361	Valid
	X2.3	0,725	0,361	Valid
	X2.4	0,807	0,361	Valid
	X2.5	0,675	0,361	Valid
	X2.6	0,765	0,361	Valid
Service Quality (X3)	X3.1	0,847	0,361	Valid
	X3.2	0,823	0,361	Valid
	X3.3	0,728	0,361	Valid
	X3.4	0,761	0,361	Valid
	X3.5	0,792	0,361	Valid
	X3.6	0,843	0,361	Valid
Customer Satisfaction (Y)	Y1	0,769	0,361	Valid
	Y2	0,892	0,361	Valid
	Y3	0,892	0,361	Valid
	Y4	0,892	0,361	Valid
	Y5	0,694	0,361	Valid

The validity test results show that all items in the questionnaire have correlation values higher than the r-table value (0.361) with a significance level below 0.05. This indicates that the instruments used in this study are valid and accurately measure the intended variables. In other words, all questionnaire items are proven to have valid measurement power and are reliable in describing the constructs under study.

Furthermore, to ensure the consistency of the measurement results, a reliability evaluation was conducted using the Cronbach's Alpha test. High reliability results demonstrate that the research instrument provides consistent and dependable data when used at different times or with different samples. A robust reliability test ensures that the research findings are stable and can be used to draw valid and trustworthy conclusions.

Table 3. Reliability Test

Variable	Cronbach's Alpha	N of Items	Description
Innovation	0,831	6	Reliable
Digitalization	0,767	6	Reliable
Service Quality	0,870	6	Reliable
Customer Satisfaction	0,849	5	Reliable

A Cronbach's Alpha value greater than 0.60 indicates that the variables in this study possess good internal consistency. Based on the table above, the reliability test results show that all research variables, both dependent and independent, have a Cronbach's Alpha value exceeding 0.60. This confirms that the questionnaire used in this study is reliable and dependable for measuring the intended constructs, ensuring stable and consistent measurement validity.

4.3 Classical Assumption Test Results

4.3.1 Normality Test Results

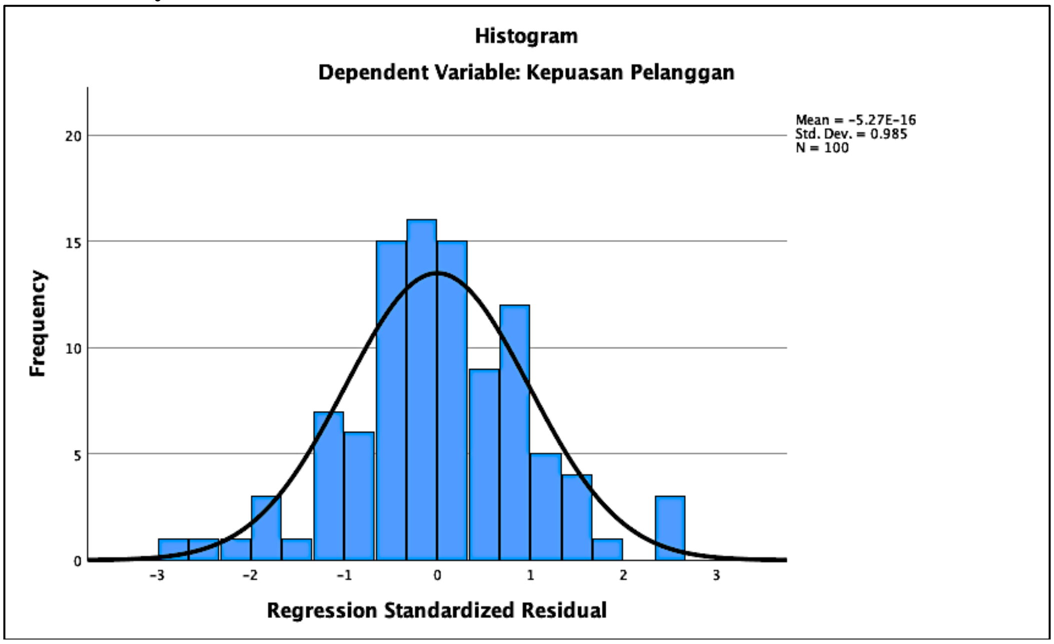

Figure 1. Results of Data Normality Test

Based on Figure 1, the histogram shows a bell-shaped curve that is symmetrical, indicating that it is not skewed to the left or right. This pattern demonstrates that the residual data in this study are normally distributed. Furthermore, the normality test is also reinforced by the Normal P-Plot graph as follows.

4.3.2 Multicollinearity Test

Table 4. Multicollinearity Test

Model	Tolerance	VIF
(Constant)		
Innovation	0.271	3.688
Digitalization	0.282	3.542
Service Quality	0.207	4.838

Based on the data in the table above, all independent variables namely Innovation (0.271), Digitalization (0.282), and Service Quality (0.584) have a Tolerance value greater than 0.10. Furthermore, the VIF values are 3.688, 3.542, and 4.838, respectively, all of which are less than 10. This indicates that there is no multicollinearity issue in the regression model, meaning that the independent variables are not excessively correlated with one another.

4.3.3 Heteroscedasticity Test

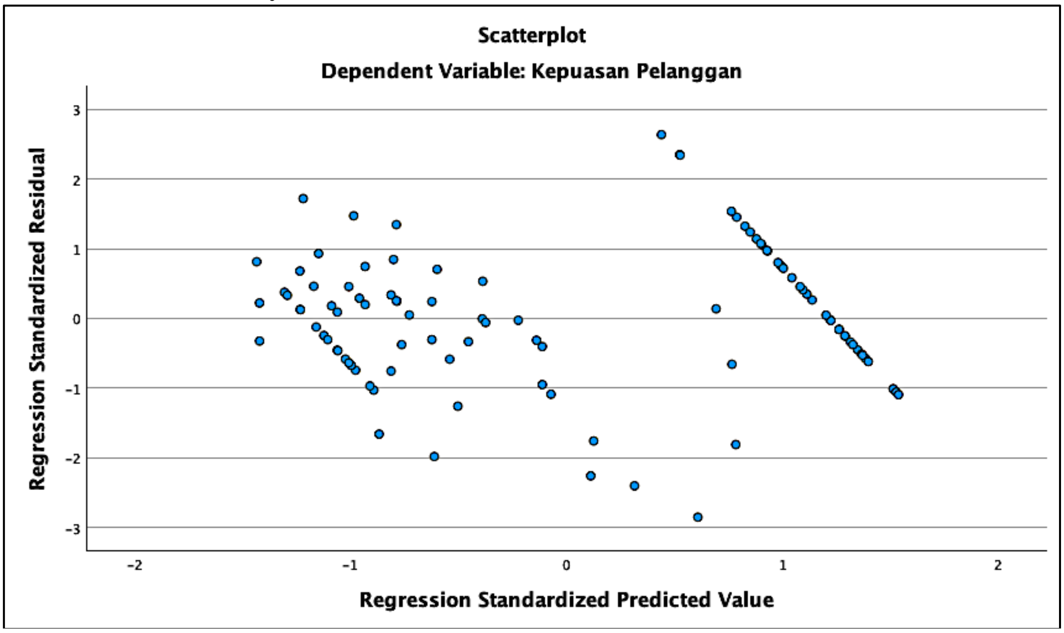

Figure 2. Scatterplot of Heteroscedasticity Test

Based on Figure 3, the data points are scattered randomly above and below the 0 point on the Y-axis (Regression Studentized Residual) and do not form any specific pattern. This indicates that there is no heteroskedasticity in the regression model. The Glejser test results to confirm this conclusion are presented in the following table.

4.4 Multiple Linear Regression Test

Table 5. Multiple Linear Regression Test

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-4.619	0.682		-6.768	0.000
	Innovation	0.457	0.071	0.349	6.403	0.000

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Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Digitalization	0.387	0.069	0.299	5.604	0.000
Service Quality	0.470	0.078	0.375	6.001	0.000

a. Dependent Variable: Customer Satisfaction

The obtained regression equation is as follows:

$$Y = -4.619 + 0.457X1 + 0.387X2 + 0.470X3$$

The constant of (–4.619) indicates that without these three variables, customer satisfaction will not be achieved. The Innovation coefficient of 0.457 means that every 1-unit increase in innovation leads to a 0.457-unit increase in satisfaction. The Digitalization coefficient of 0.387 means that every 1-unit increase in digitalization leads to a 0.387-unit increase in satisfaction. The Service Quality coefficient of 0.470 is the largest, suggesting that service quality is the most significant variable in driving customer satisfaction.

4.5 Coefficient of Determination Test

Table 6. Coefficient of Determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.961	0.923	0.920	1.829

The Adjusted R^2 of 0.920 indicates that Innovation, Digitalization, and Service Quality collectively explain 92.0% of the variation in Customer Satisfaction. The remaining 8.0% is influenced by other variables outside the model. The R value of 0.961 demonstrates a very strong correlation between the three independent variables and Customer Satisfaction.

4.6 F Test

Table 8. F Test

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	3831.443	3	1277.148	381.717	<0.001
Residual	321.197	96	3.346		
Total	4152.640	99			

The calculated F-value is 381.717, which is greater than the F-table value of 2.70, with a significance level of 0.000, which is less than 0.05. This indicates that Innovation, Digitalization, and Service Quality simultaneously have a positive and significant effect on the Customer Satisfaction of MSMEs in Medan City.

4.7 T-Test

Table 9. T-Test

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-4.619	0.682		-6.768	0.000
	Innovation	0.457	0.071	0.349	6.403	0.000
	Digitalization	0.387	0.069	0.299	5.604	0.000
	Service Quality	0.470	0.078	0.375	6.001	0.000

a. Dependent Variable: Customer Satisfaction

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Based on the t-test results presented in the table, it is evident that all three independent variables Innovation, Digitalization, and Service Quality have a positive and significant influence on Customer Satisfaction for MSMEs in Medan. Specifically, the Innovation variable (X1) shows a t-count of 6.403, Digitalization (X2) records a t-count of 5.604, and Service Quality (X3) yields a t-count of 6.001, all with significance levels of 0.000, which are well below the threshold of 0.05. The unstandardized coefficients indicate that Innovation has the strongest impact on satisfaction (0.457), closely followed by Service Quality (0.470) and Digitalization (0.387). Furthermore, the standardized beta coefficients reveal that Service Quality is the most influential predictor in the model (0.375), suggesting that consumers in Medan place a premium on service excellence. In conclusion, these findings confirm that all proposed variables are essential drivers of customer satisfaction, with Service Quality acting as the primary catalyst for positive consumer feedback within the local MSME sector.

4.8 Discussion

4.8.1 The Influence of Innovation on Customer Satisfaction

Innovation has a positive and significant effect on Customer Satisfaction (t-statistic = 6.403; Sig. = 0.000). This finding confirms that mobile coffee MSME entrepreneurs who actively innovate in product variety, flavor, packaging, and presentation methods are able to create new experiences that meet or even exceed customer expectations. Innovation provides consumers with reasons to keep returning, as there is always something new and interesting to try. Theoretically, this concept is rooted in Schumpeter's innovation theory, which asserts that innovation is the primary force driving economic growth and business competitiveness. In the context of MSMEs, product innovation encompasses the development of new variants, the improvement of existing product attributes, and the adjustment of products to meet ever-changing market tastes (Schumpeter, 1934; Setiawan et al., 2023) explain that customer satisfaction is formed when the perceived performance of a product or service exceeds a consumer's initial expectations; product innovation serves as a mechanism that directly enhances this perceived value. In line with this, (Siagian et al., 2025; Suminah et al., 2022) emphasizes that continuous innovation is the foundation for long-term competitiveness in consumer-based businesses, including the beverage and culinary sectors.

Furthermore, the Resource-Based View (RBV) approach developed by (Barney, 1991) and reinforced by contemporary studies is also relevant, where the ability to innovate constitutes a resource that is difficult for competitors to imitate, thus becoming a sustainable competitive advantage. When mobile coffee MSMEs can present unique drink variants for instance, through the fusion of local spices or the use of eco-friendly packaging it creates differentiation that strengthens perceived value in the customers' minds, thereby increasing satisfaction.

4.8.2 The Influence of Digitalization on Customer Satisfaction

Digitalization has a positive and significant effect on Customer Satisfaction (t-statistic = 5.604; Sig. = 0.000). MSMEs that leverage digital platforms such as online ordering, cashless payments, and social media promotions provide accessibility and transactional efficiency that are directly experienced by customers. Given that 70% of the respondents are under 26 years old, predominantly university students and young professionals, digital adoption is highly relevant as this segment is well-accustomed to technology-based services.

The theoretical framework supporting this finding is the Technology Acceptance Model (TAM) developed by (Novirsari, 2022) which explains that user acceptance of technology is influenced by perceived ease of use and perceived usefulness. In the context of mobile coffee MSME customers, the adoption of digital platforms by vendors creates perceived convenience for consumers: transactions are faster, cash is unnecessary, and product information is available at any time via social media (Nasib et al., 2026). (Kotler & Armstrong, 2022) emphasize that in the digital economy era, service accessibility and efficiency are critical components of customer satisfaction for the younger generation, who rely heavily on digital ecosystems in their daily lives.

Research compiled in the literature study by (Anggara et al., 2026)(Sindy et al., 2026)(Eryc et al., 2026) concludes that MSME digitalization through social media, marketplaces, and digital payment systems serves as a primary acceleration factor that strengthens MSME adaptability and directly enhances consumer satisfaction. Furthermore, (Salqaura & Nasib, 2026) state that digital customer complaint resolution and the adoption of supporting digital technologies are key strategies that increase customer satisfaction and loyalty for MSMEs in emerging markets.

4.8.3 The Influence of Service Quality on Customer Satisfaction

Service Quality has a positive and significant effect on Customer Satisfaction (t - statistic = 6.001; Sig. = 0.000) with a Beta coefficient of 0.375, which is the highest among the three independent variables. Service quality is the strongest determinant of customer satisfaction in this study. Mobile coffee consumers are highly sensitive to the vendor's friendliness, service speed, and product quality consistency. When service standards are maintained, satisfaction is firmly established, driving repeat purchases—as evidenced by the 81% of respondents who purchase at least twice per week.

Theoretically, this finding confirms the SERVQUAL model developed by (Parasuraman et al., 1988), one of the most influential models in marketing management literature. This model explains that service quality is measured through five key dimensions: tangibles, reliability, responsiveness, assurance, and empathy. The gap between customer expectations and their perceptions across these five dimensions determines the level of satisfaction formed (Munandar et al., 2022)(Salsabillah, 2022)(Lestari et al., 2021). (Tjiptono, 2022) asserts that in micro-scale culinary businesses, the dimensions of responsiveness and empathy carry significant weight because the interaction between the seller and the buyer occurs directly and personally. This is highly relevant to the context of mobile coffee MSMEs, where the nature of service is face-to-face and the seller-customer relationship is interpersonal.

4.8.4 The Simultaneous Influence on Customer Satisfaction

All three variables simultaneously exert a positive and significant effect on Customer Satisfaction (F-statistic = 381.717; Sig. = 0.000) with an Adjusted R2 of 0.920. This value is exceptionally high, indicating that 92.0% of the variance in Customer Satisfaction can be explained by the model developed in this study. These findings suggest that Innovation, Digitalization, and Service Quality work synergistically as an integrated system in shaping the customer satisfaction of mobile coffee MSMEs.

The Adjusted R2 of 0.920 is supported by the Customer Satisfaction Theory developed by (Parasuraman et al., 1988), through the Expectancy Disconfirmation Theory. Oliver explains that satisfaction is formed when the perceived actual performance of a product or service exceeds or at least meets a customer's initial expectations (Rivai et al.,

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2021)(Limbong et al., 2025)(Husni, 2023). For mobile coffee MSMEs, when innovation provides attractive new products, digitalization simplifies ordering and payment, and service quality offers a warm and responsive service experience, the combination of all three simultaneously produces a strong positive confirmation of customer expectations, resulting in satisfaction reaching a very high level (Tirtayasa et al., 2024)(Sutejo et al., 2024)(Thamrin et al., 2025).

5. Conclusion

This study examines the influence of Innovation, Digitalization, and Service Quality on Customer Satisfaction of MSMEs in Medan City, specifically in the mobile coffee (kopi keliling) sector. Using multiple linear regression analysis on 100 respondents selected through accidental sampling, the results show that Innovation, Digitalization, and Service Quality simultaneously have a significant effect on Customer Satisfaction, with an F-statistic of 381.717 (Sig. 0.000 < 0.05). Partially, Innovation has a positive and significant effect on Customer Satisfaction (t-count = 6.403; Sig. 0.000), confirming that MSMEs that actively innovate in product variety, flavor, packaging, and presentation methods are able to create new experiences that meet or exceed customer expectations. Digitalization also has a positive and significant effect on Customer Satisfaction (t-count = 5.604; Sig. 0.000), indicating that MSMEs leveraging digital platforms such as online ordering, cashless payments, and social media promotions provide accessibility and transactional efficiency that are directly experienced by customers. Service Quality has a positive and significant effect on Customer Satisfaction (t-count = 6.001; Sig. 0.000) with the highest Beta coefficient (0.375), confirming that service quality is the strongest determinant of customer satisfaction among the three variables. The Adjusted R^2 value of 0.920 indicates that 92.0% of the variation in Customer Satisfaction is explained by Innovation, Digitalization, and Service Quality, while the remaining 8.0% is influenced by other variables outside the model.

The theoretical implications of this study reinforce the application of Schumpeter's innovation theory, the Technology Acceptance Model (TAM), and the SERVQUAL model in the context of MSMEs, demonstrating that these frameworks remain relevant in explaining customer satisfaction in the digital economy era. The findings confirm that innovation serves as a mechanism that directly enhances perceived value, digitalization creates perceived convenience and efficiency through technology adoption, and service quality measured through reliability, responsiveness, assurance, empathy, and tangibles determines the level of satisfaction formed. The exceptionally high Adjusted R^2 of 0.920 suggests that these three variables work synergistically as an integrated system in shaping customer satisfaction, supporting the Expectancy Disconfirmation Theory which explains that satisfaction is formed when perceived performance exceeds or meets customer expectations. The dominant influence of Service Quality in this study extends the application of the SERVQUAL model to micro-scale culinary businesses, where responsiveness and empathy carry significant weight due to the direct and interpersonal nature of seller-buyer interactions.

From a practical perspective, MSME owners in the mobile coffee sector should prioritize service quality as the primary driver of customer satisfaction, focusing on friendliness, service speed, and product quality consistency. Digitalization efforts should be enhanced through the adoption of online ordering systems, cashless payments, and active social media engagement to meet the expectations of young, tech-savvy consumers. Continuous innovation in product variety, flavor development, packaging, and presentation methods is essential for maintaining competitive differentiation and creating unique customer experiences. MSMEs should integrate these three elements—innovation, digitalization, and service quality—into a cohesive business strategy to ensure long-term customer loyalty and sustained growth. Policymakers and business development institutions should support MSME digitalization through training programs and infrastructure development, particularly for the 81% of MSMEs that have not fully adopted digital tools, as well as promote innovation and service quality standards through business competitions, certifications, and mentorship programs.

This study has several limitations. First, the research is limited to the mobile coffee sector in Medan City, which may restrict the generalizability of findings to other MSME sectors or geographic regions with different characteristics. Second, the sample size of 100 respondents, while adequate for regression analysis, may not fully represent the diversity of mobile coffee consumers in Medan City. Third, the study focuses solely on three variables—Innovation, Digitalization, and Service Quality—without considering other potential determinants of Customer Satisfaction such as price, brand image, product quality, or location convenience. Fourth, the cross-sectional design captures customer satisfaction at a single point in time, which may not reflect dynamic changes in consumer perceptions and preferences over time. Fifth, the use of accidental sampling may introduce selection bias, as respondents were selected based on availability rather than systematic representation.

Future research should broaden the scope by including other MSME sectors such as culinary, retail, or services to enhance generalizability and capture variations in customer satisfaction across different industries. It would also be valuable to integrate additional variables—such as price perception, brand image, product quality, location convenience, and customer trust—to provide a more comprehensive understanding of customer satisfaction determinants. Employing larger sample sizes and more rigorous sampling techniques, such as stratified random sampling, could strengthen the representativeness and generalizability of findings. Longitudinal studies would provide deeper insights into the temporal dynamics of customer satisfaction and the sustainability of MSME performance. Finally, comparative studies across different regions or cities in Indonesia could provide insights into how regional characteristics influence the relationships between innovation, digitalization, service quality, and customer satisfaction in the MSME sector.

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