



PRODUCT QUALITY STRATEGY AND E-COMMERCE UTILIZATION ON PURCHASE DECISIONS AMONG MSMEs IN NORTH GORONTALO

La Diu Samiu^{1)*}, Muhammad Anas¹⁾, Arifuddin²⁾

¹⁾Faculty of Economics and Business, Universitas Ichsan Gorontalo Utara, Gorontalo, Indonesia

²⁾Faculty of Engineering, Universitas Ichsan Gorontalo Utara, Gorontalo, Indonesia

*Corresponding author: samiu.diu@gmail.com

ARTICLE INFO

Article history

Received : 21 April 2026

Revised : 5 May 2026

Accepted : 5 May 2026

Keywords

e-commerce market potential; MSMEs; product improvement; purchasing decisions; strategy

JEL classification

L25; M31; O33

ABSTRACT

The increasingly widespread adoption of e-commerce among micro, small, and medium enterprises (MSMEs) in developing regions raises empirical questions about the extent to which product quality improvement strategies and the use of digital platforms influence consumer purchasing decisions. This study aims to examine the influence of product improvement strategies (X1) and e-commerce market potential (X2) on purchasing decisions (Y) among MSMEs in North Gorontalo Regency, Indonesia. A quantitative approach was used as the primary method, supplemented by qualitative data to enrich contextual interpretation. Data collected through a structured questionnaire administered to 100 MSME respondents purposively selected based on the criteria of actively using e-commerce platforms were then analyzed using multiple linear regression through SPSS version 26. The results of the analysis showed that neither X1 ($\beta = -0.169$; $p = 0.521$) nor X2 ($\beta = -0.235$; $p = 0.397$) had a statistically significant influence on purchasing decisions. The test also yielded an insignificant simultaneous value ($F = 1.326$; $p = 0.287$), with the model's ability to explain limited variance ($R^2 = 0.112$; Adjusted $R^2 = 0.028$). These findings indicate that product improvement strategies and e-commerce market potential, as operationalized in this study, have not been proven to be the main determinants of purchasing decisions in the context of MSMEs in areas with limited digital infrastructure. Future research should consider additional variables such as digital literacy, price, and service quality to improve the model's predictive power.

This is an open-access article under the CC-BY 4.0 license.



1. INTRODUCTION

The rapid development of information technology in the digital era has fundamentally changed patterns of social and economic interaction, including in the trade sector. This transformation opens up both opportunities and challenges for micro, small, and medium enterprises (MSMEs) in Indonesia, particularly in North Gorontalo Regency, to increase their competitiveness in the e-commerce-based market (Arridho et al., 2025; Probohudono et al., 2025). As a strategic sector driving the national economy, MSMEs contribute approximately 60% to national GDP and employ over 97% of the Indonesian workforce (Jati, 2025). This substantial contribution makes

strengthening the digital capacity of MSMEs an agenda that is not only economically relevant but also crucial for equitable development in regions still facing limited technological infrastructure.

Within the framework of consumer behavior theory, product quality has long been recognized as a key antecedent to purchasing decisions. Kotler and Keller (2016) assert that consumer perceptions of product quality operate through mechanisms of trust, satisfaction, and perceived value, which ultimately drive or inhibit purchasing decisions. In line with this, Gozali (2024) identified that product quality, price, and promotion are the dominant factors influencing consumer purchasing decisions in the domestic market. On the other hand, the development of digital platforms has added a new dimension to the marketing dynamics of MSMEs. The Technology Acceptance Model (TAM) developed by Davis (1989) explains that user acceptance of technology is influenced by perceptions of the usefulness and ease of use of a system. Furthermore, the Unified Theory of Acceptance and Use of Technology (UTAUT) formulated by Venkatesh et al. (2003) expands this framework by including social influence, facilitating conditions, and performance expectations as determinants of technology adoption among small business owners. These two theoretical frameworks provide a strong conceptual foundation for understanding how product improvement strategies and e-commerce utilization interact to influence consumer behavior.

In the Indonesian context, several studies have documented the potential of e-commerce as an instrument for increasing MSME competitiveness. Hafitasari et al. (2022) demonstrated that e-commerce utilization is positively related to the sales performance of MSMEs nationally, while Melina & Sudrartono (2023) confirmed that e-commerce-based marketing strategies contribute to increased sales volume for small businesses in Bandung. Sari and Nuryadin (2024) further emphasized that optimizing digital platforms requires not only the availability of technology but also the competence of business actors in managing content and interacting with consumers online. Abigael et al. (2025) and Octaviani et al. (2025) added that e-commerce platform features and design significantly influence customer loyalty, which in turn impacts the continuation of purchasing decisions. At a more local level, Saudin et al. (2022) found that product design and price influence consumer purchasing decisions in culinary businesses in Luwuk, providing an initial indication that product attributes remain relevant even in the context of small businesses in the region.

Although research on the digital transformation of MSMEs continues to grow, most existing studies focus on urban contexts or environments that are already relatively technologically advanced. Studies specifically examining how product quality improvement strategies and optimizing e-commerce platform utilization jointly influence consumer purchasing decisions in developing regions with limited digital infrastructure are still very limited. This empirical gap is crucial to address, given that the dynamics prevailing in urban centers cannot necessarily be generalized to regions like North Gorontalo Regency, where digital literacy levels among MSMEs remain low and internet coverage remains uneven.

Based on this research gap, this study formulates three hypotheses to be empirically tested. First, product improvement strategies (X1) are suspected to have a positive and significant effect on consumer purchasing decisions (Y) among MSMEs in North Gorontalo Regency. Second, e-commerce market potential (X2) is suspected to have a positive and significant effect on consumer purchasing decisions (Y). Third, product improvement strategies and e-commerce market potential are suspected to simultaneously have a significant effect on consumer purchasing decisions among MSMEs in North Gorontalo Regency.

By testing these three hypotheses, this study aims to generate empirical evidence that can provide a deeper understanding of the factors influencing purchasing decisions in the context of MSMEs in areas with limited digital access. Theoretically, the findings of this study are expected to enrich the literature on digital marketing and MSME competitiveness in developing countries. Practically, the results of this study can serve as a basis for business actors in designing more effective marketing strategies and provide input for policymakers in developing inclusive and targeted digital economic development programs in the North Gorontalo region.

2. RESEARCH METHODS

This study employed a quantitative approach as the primary method, supplemented by qualitative data to deepen the contextual interpretation of statistical results. This design adheres to the explanatory sequential model proposed by Creswell & Creswell (2018), where quantitative analysis serves as the primary basis for hypothesis testing, while qualitative data is used to explain and contextualize empirical findings not fully captured by the statistical approach.

The study population comprised MSMEs in North Gorontalo Regency who actively utilize e-commerce platforms for product promotion and sales. Sampling was conducted using a purposive sampling technique based on the following criteria: respondents were the owners or primary managers of MSMEs, their businesses had been operating for at least one year, and they actively used at least one e-commerce platform such as Tokopedia, Shopee, or Instagram Commerce. Based on these criteria, 100 eligible respondents were selected. This number was deemed sufficient for multiple regression analysis, following the recommendation of Hair et al. (2017) of a minimum of 10 observations per predictor variable. However, the use of purposive sampling is acknowledged to limit the generalizability of the findings to the broader MSME population.

This study involved one dependent variable and two independent variables. Purchasing decisions (Y) are defined as the cognitive and behavioral processes consumers undergo in deciding to purchase MSME products or services. These are measured using five indicators: need recognition, information search, alternative evaluation, purchase decision, and post-purchase behavior, adapted from Kotler and Keller (2016). Product improvement strategies (X1) refer to MSME actors' efforts to improve product quality and attractiveness, measured through three dimensions: raw material quality, production process quality, and product design, adapted from Saudin et al. (2022). E-commerce market potential (X2) reflects the extent to which digital platforms provide effective channels for marketing and selling MSME products, measured through platform feature utilization, digital marketing reach, and consumer engagement, adapted from Hafitasari et al. (2022). All statement items are measured using a five-point Likert scale. Validity testing was conducted using Pearson Product Moment correlation with an item-total correlation threshold of 0.30, while reliability testing was conducted using Cronbach's Alpha with a minimum acceptable value of 0.60.

Primary data collection was conducted through a structured questionnaire distributed directly to respondents at business locations and through a digital survey platform. Qualitative data were obtained through semi-structured interviews with eight respondents selected from the quantitative sample, reflecting variations in business sector, business scale, and level of e-commerce adoption. Interview data were analyzed thematically following the procedures of Braun & Clarke (2006) and used to contextualize the statistical findings.

Quantitative data analysis was conducted using multiple linear regression. Prior to regression testing, a normality test was performed using the Kolmogorov–Smirnov method and the Normal Probability Plot. Hypothesis testing was performed using a partial t-test and a simultaneous F-test at a significance level of $\alpha = 0.05$. The coefficient of determination (R^2) was used to measure the proportion of variance in the dependent variable that can be explained by the model. The entire statistical analysis process was performed using SPSS version 26 software.

3. RESULTS AND DISCUSSION

3.1. RESULTS

Before hypothesis testing is conducted, a normality test is first performed to ensure that the residual data is normally distributed, as one of the basic assumptions of the linear regression model (Sugiyono, 2017). The results of the normality test are displayed in a Normal Probability Plot, which shows that the data points are spread around and follow the direction of the diagonal line, indicating that the residuals of the regression model meet the normality assumption. This is supported by the results of the Kolmogorov–Smirnov test, which showed a significance value above 0.05, thus meeting the normality assumption and allowing the regression analysis to proceed.

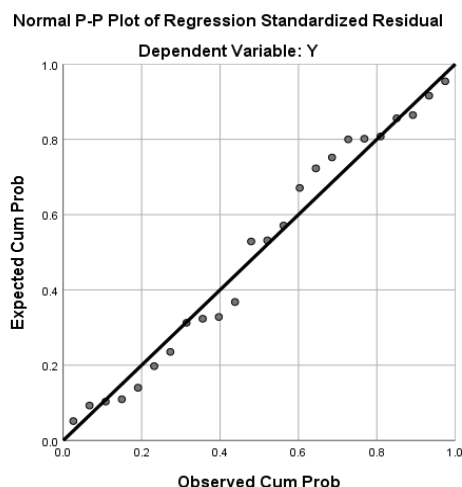


Figure 1. Normal Probability Plot
Source: Processed Data, 2025

After the normality assumption was met, a multiple linear regression analysis was conducted to examine the effect of product improvement strategies (X1) and e-commerce market potential (X2) on purchasing decisions (Y). The results of the analysis are presented in Table 1 below.

Table 1. Multiple Linear Regression Test Result

Model	B	Std. Error	t	Sig.
(Constant)	3.469	.652	5.322	.000
X1	-.169	.259	-.652	.521
X2	-.235	.272	-.865	.397

Source: Processed Data, 2025

Based on Table 1, the multiple linear regression equation obtained is as follows:

$$Y = 3.469 - 0.169X_1 - 0.235X_2 + \varepsilon \dots\dots\dots (1)$$

The constant value of 3.469 with a significance of 0.000 indicates that when both independent variables are zero, the average purchasing decision of MSMEs remains at a statistically significant value of 3.469. The regression coefficient of X1 of -0.169 indicates a negative relationship between product improvement strategies and purchasing decisions, with a significance value of 0.521 which exceeds the limit of $\alpha = 0.05$. The regression coefficient of X2 of -0.235 also indicates a negative relationship between e-commerce market potential and purchasing decisions, with a significance value of 0.397 which also exceeds the limit of $\alpha = 0.05$. Thus, partially the two independent variables do not have a significant effect on purchasing decisions.

Partial hypothesis testing was conducted using the t-test at a significance level of $\alpha = 0.05$ with degrees of freedom $df = n - k - 1 = 100 - 2 - 1 = 97$, resulting in a t-table value of 1.985. The product improvement strategy variable (X1) produced a t-count value of -0.652, which in absolute terms ($|-0.652| = 0.652$) is smaller than the t-table of 1.985, with a significance value of $0.521 > 0.05$. Thus, H1 is rejected, meaning that the product improvement strategy does not have a partial significant effect on the purchasing decisions of MSMEs in North Gorontalo Regency. The e-commerce market potential variable (X2) produces a t-count value of -0.865, which in absolute terms ($|-0.865| = 0.865$) is also smaller than the t-table of 1.985, with a significance value of $0.397 > 0.05$. Thus, H2 is also rejected, which means that the e-commerce market potential does not have a significant partial effect on the purchasing decisions of MSMEs in North Gorontalo Regency.

The results of simultaneous testing are presented in Table 2 below.

Table 2. Simultaneous Test Results (F-Test)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	4.252	2	2.126	1.326	0.287
Residual	33.662	97	0.347		
Total	37.914	99			

Source: Processed Data, 2025

Based on Table 2, the F-count value obtained is 1.326 with a significance value of 0.287. With $df_1 = k = 2$ and $df_2 = n - k - 1 = 97$, the F-table value at a significance level of 5% is 3.090. Because the F-count ($1.326 < F\text{-table}$ (3.090)) and the significance value ($0.287 > \alpha$ (0.05)), then H_3 is rejected. This means that product improvement strategies and e-commerce market potential simultaneously do not have a significant effect on MSME purchasing decisions in North Gorontalo Regency.

Table 3. Coefficient of Determination Test Results

Model	R	R Square	Adjusted R Square	Std. Error
1	.335a	.112	.028	1.26608

Source: Processed Data, 2025

Based on Table 3, the R^2 value of 0.112 indicates that 11.2% of the variation in purchasing decisions can be explained by the product improvement strategy and e-commerce market potential variables. The Adjusted R^2 value of 0.028, or 2.8%, indicates that after considering the number of predictors and sample size, the model's ability to explain variation in purchasing decisions is very limited. This is consistent with the results of the t-test and F-test, which also showed no significant influence of the two independent variables on the dependent variable.

3.2 DISCUSSION

Based on the results of the multiple linear regression analysis, it was found that product improvement strategies (X1) did not significantly influence MSME purchasing decisions in North Gorontalo Regency ($t = -0.652$; $p = 0.521$). This finding is inconsistent with the theoretical proposition of Kotler and Keller (2016), which states that consumer perceptions of product quality operate through mechanisms of trust, satisfaction, and perceived value, which ultimately drive purchasing decisions. Similarly, these results differ from the findings of Gozali (2024), who identified product quality as a dominant factor influencing consumer purchasing decisions in the domestic market, and the findings of Saudin et al. (2022), who found a significant influence of product design on purchasing decisions in culinary businesses in Luwuk. This discrepancy is likely due to the contextual conditions in the study area, where product quality improvements undertaken by MSMEs have not been accompanied by adequate capabilities in communicating these product advantages to consumers through digital platforms. Based on qualitative data obtained from interviews, most MSMEs in North Gorontalo Regency acknowledged limitations in managing visual product content, such as photos, videos, and informative descriptions, on e-commerce platforms, resulting in ineffective product improvement efforts for potential buyers.

Consistent with these findings, the e-commerce market potential variable (X2) also showed no significant effect on purchasing decisions ($t = -0.865$; $p = 0.397$). This finding differs from the findings of Hafitasari et al. (2022), which showed that e-commerce utilization was positively related to MSME sales performance nationally, and the findings of Melina and Sudrartono (2023), which confirmed that e-commerce-based marketing strategies contributed to increased sales volume for small businesses. This difference can be explained using the TAM (Davis, 1989) and UTAUT (Venkatesh et al., 2003) frameworks, which emphasize that technology adoption will only produce measurable impacts if users, both businesses and consumers, have an adequate level of digital readiness. In North Gorontalo Regency, limited internet infrastructure and low digital literacy among consumers mean that the potential offered by e-commerce platforms has not been optimally utilized.

This condition aligns with the findings of Abigael et al. (2025) and Octaviani et al. (2025), which emphasized that the effectiveness of e-commerce features in influencing consumer behavior is highly dependent on consumers' level of familiarity with and trust in the digital platform.

The results of the simultaneous F-test further confirm the aforementioned pattern of findings, where product improvement strategies and e-commerce market potential simultaneously also had no significant effect on MSME purchasing decisions ($F = 1.326$; $p = 0.287$). The Adjusted R^2 value of 2.8% indicates that most of the variation in purchasing decisions is explained by factors outside the model tested in this study. These factors likely include product price, service quality, proximity to business locations, consumer trust, and consumer social and psychological conditions, which were not included as variables in this study (Gozali, 2024; Sari & Nuryadin, 2024). Overall, these findings provide important implications that in the context of regions with limited digital infrastructure such as North Gorontalo Regency, efforts to increase the competitiveness of MSMEs are not sufficient to focus only on the dimensions of products and e-commerce platforms alone, but need to be preceded by strengthening digital literacy and improving technological infrastructure as basic prerequisites for digital marketing strategies to work effectively.

4. CONCLUSION

This study aims to examine the effect of product improvement strategies (X1) and e-commerce market potential (X2) on consumer purchasing decisions (Y) among MSMEs in North Gorontalo Regency. Based on the results of multiple linear regression analysis of data collected from 100 respondents, it was found that product improvement strategies did not have a statistically significant effect on purchasing decisions, with a coefficient value of -0.169 and a significance level of 0.521 which exceeded the $\alpha = 0.05$ limit. Similarly, e-commerce market potential was not proven to have a significant effect on purchasing decisions, with a coefficient of -0.235 and a significance value of 0.397. The simultaneous F test produced an F value of 1.326 with a probability of 0.287, which means that both independent variables together also did not have a significant effect on the dependent variable. The coefficient of determination obtained ($R^2 = 0.112$; Adjusted $R^2 = 0.028$) indicates that the model is only able to explain a small portion of the variation in purchasing decisions, thus the three hypotheses formulated in this study are not empirically supported.

The insignificance of these two variables likely reflects the specific contextual conditions in the study area. Based on qualitative data obtained through interviews, limited digital literacy among MSMEs, low mastery of e-commerce platform features, and unequal internet infrastructure in North Gorontalo Regency are suspected factors that weaken the effectiveness of product improvement strategies and e-commerce utilization in driving consumer purchasing decisions. However, it should be emphasized that these factors are contextual explanations derived from qualitative data and are not variables directly tested in the regression model. Therefore, their interpretation must be carried out with caution and is not causal.

This study has several limitations that need to be explicitly acknowledged. First, the use of purposive sampling techniques limits the representativeness of the sample and the generalizability of the findings to the broader MSME population. Second, the low R^2 value indicates that important explanatory variables are not included in the model, such as product price, service quality, digital infrastructure accessibility, and consumers' digital literacy levels. Third, the measurement of variables, which relies entirely on self-report Likert scales, potentially contains common method bias, which could impact the internal validity of the findings. Fourth, the cross-sectional research design does not allow for observation of changes in consumer behavior over time.

Based on these findings and limitations, future research is recommended to expand the model by including variables not yet covered, such as digital literacy, technological infrastructure, price, and consumer trust in digital platforms. The use of probabilistic sampling methods is also recommended to increase the representativeness and generalizability of the results. Furthermore, a

longitudinal approach can be considered to more comprehensively capture the dynamics of e-commerce adoption and changes in consumer purchasing behavior.

For policymakers, these findings underscore the importance of addressing fundamental barriers, particularly digital literacy and infrastructure, as a prerequisite for product quality and e-commerce strategies to have a measurable impact on consumer behavior. For MSMEs, the results of this study imply that strengthening platform competencies and digital consumer engagement strategies needs to be a priority before expecting significant effects from product improvement efforts alone.

5. REFERENCES

- Abigael, V., Yumna, D. T., Nafilah, M. K. Z., & Ferdianto. (2025). Building Customer Loyalty in E-Commerce with User Experience and Interface Design while Adapting to AI Developments in FinTech. *2025 International Conference on ICT for Smart Society, ICISS 2025*. <https://doi.org/10.1109/ICISS66954.2025.11389554>
- Arridho, A., Sinaga, B. O., Hartono, H., & Syahchari, D. H. (2025). Digital Technology Adoption and Business Growth in Indonesian MSMEs Using PLS-SEM. *Proceeding - 2025 4th International Conference on Creative Communication and Innovative Technology: Empowering Transformative MATURE LEADERSHIP: Harnessing Technological Advancement for Global Sustainability, ICCIT 2025*. <https://doi.org/10.1109/ICCIT65724.2025.11167198>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Creswell, J. W., & Creswell, J. D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (5th Ed.). Los Angeles: SAGE Publications. https://spada.uns.ac.id/pluginfile.php/510378/mod_resource/content/1/creswell.pdf
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319-340. <https://doi.org/10.2307/249008>
- Gozali, A. (2024). Faktor-Faktor yang Mempengaruhi Keputusan Pembelian Konsumen. *JUBISMA, 6*(1), 1–6. <https://doi.org/10.58217/jubisma.v6i1.128>
- Hafitasari, I. A., Adzani, D. A., & Mafruhah, A. Y. (2022). Analisis Hubungan E-Commerce terhadap UMKM di Indonesia. *JDEP (Jurnal Dinamika Ekonomi Pembangunan), 5*(2), 95–105. <https://doi.org/0.33005/jdep.v5i2.401>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (2nd ed.). SAGE Publications. https://eli.johogo.com/Class/CCU/SEM/_A Primer on Partial Least Squares Structural Equation Modeling_Hair.pdf
- Jati, G. (2025). *Towards Green and Low-Carbon MSMEs*. Institute for Essential Services Reform. <https://iesr.or.id/en/towards-green-and-low-carbon-msmes/>
- Kotler, P., & Keller, K. L. (2016). *Marketing management* (15th editi). London: Pearson Education Limited.
- Melina, S., & Sudrartono, T. (2023). E-Commerce sebagai Strategi Pemasaran dalam Upaya Meningkatkan Penjualan di Distro SPRK.Apparel Bandung. *Jurnal Ilmiah Manajemen, Ekonomi, & Akuntansi (MEA), 7*(1), 813–829. <https://doi.org/10.31955/mea.v7i1.2925>
- Octaviani, R. D., Maemunah, S., Liling, A. R., Mazid, A., & Salmah, Y. (2025). The Effect of Web Usability and E-commerce Security on Customer Satisfaction and Purchase Decision. *SpringerBriefs in Applied Sciences and Technology, Part F766, 27 – 33*.

https://doi.org/10.1007/978-3-031-91497-3_4

- Probohudono, A. N., Suhardjanto, D., Aligarh, F., Chayati, N., & Putra, A. A. (2025). Navigating MSMEs' performance through innovation and digital IT capabilities in business strategy. *Social Sciences and Humanities Open*, 12. <https://doi.org/10.1016/j.ssaho.2025.101810>
- Sari, P., & Nuryadin, M. B. (2024). Strategi Pemasaran UMKM di Platform E-Commerce: Studi Kasus di Kota Samarinda. *Jurnal Review Pendidikan Dan Pengajaran*, 7(4), 15278–15283. <https://doi.org/10.31004/jrpp.v7i4.36280>
- Saudin, L., Djawa, S. K., & Samiu, L. D. (2022). Pengaruh Desain Produk dan Harga Terhadap Keputusan Pembelian Pada Kedai Coffee Terserah Kota Luwuk. *Jurnal Ilmiah Manajemen Ekonomi Manajemen Orientasi Riset*, 6(2), 101–121. <https://doi.org/10.32529/jim.v6i2.1708>
- Sugiyono. (2017). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3), 425–478. <https://ssrn.com/abstract=3375136>