

THE INFLUENCE OF THE TECHNOLOGY ACCEPTANCE MODEL ON DIGITAL MARKETING ADOPTION AMONG MICRO, SMALL, AND MEDIUM ENTERPRISES (MSMES): THE MODERATING ROLE OF DIGITAL MARKETING TRAINING

Ali Amzah ^{a*)}, Marliyah ^{a)}, Nurbaiti ^{a)}

^{a)} Universitas Islam Negeri Sumatera Utara, Medan, Indonesia

^{*)}Corresponding Author: amzah3004233001@uinsu.ac.id

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Abstract. This study aims to analyze the influence of the Technology Acceptance Model on the adoption of digital marketing among MSMEs, with digital marketing training as a moderating variable. The focus of this study is on MSME participants who attended a *digital marketing* training program organized by the Medan City Department of Cooperatives, MSMEs, Industry, and Trade in collaboration with Lazada Indonesia. This study employs a quantitative approach, using a questionnaire distributed to 100 SME participants who attended the *digital marketing* training as the data collection method. The data were analyzed using *Structural Equation Modeling* (SEM) based on *Partial Least Squares* (SmartPLS). The results show that the Technology Acceptance Model (TAM), with its two main components—*Perceived Usefulness* (PU) and *Perceived Ease of Use* (PEOU)—has a positive and significant influence on the adoption of *digital marketing*. Furthermore, the *digital marketing* training was also found to have a positive and significant influence on the adoption of *digital marketing*. Furthermore, *digital marketing* training was found to moderate the effects of *Perceived Usefulness* (PU) and *Perceived Ease of Use* (PEOU) on *digital marketing* adoption. These findings suggest that SME operators who participate in *digital marketing* training will enhance their understanding of *digital marketing*, thereby encouraging them to utilize *digital marketing* optimally. Furthermore, understanding *digital marketing* concepts will certainly make it easier for SME owners to adopt *digital marketing*, as digital skills can expand their market reach—especially given that consumer behavior is increasingly reliant on digital platforms.

Keywords: TAM, Digital Marketing Adoption, Digital Marketing Training

I. INTRODUCTION

Over time, the development of the Industry 5.0 revolution has had a significant impact on global progress, particularly in the advancement of the internet and the emergence of marketing through internet media platforms—commonly referred to as digital marketing. In the 2000s, digital marketing in Indonesia began to show substantial growth. By the 2010s, digital marketing had become one of the most vital marketing strategies in Indonesia (Sinurat & Sugiyanto, 2022). According to the Indonesian Internet Service Providers Association (APJII), the number of internet users in Indonesia reached approximately 215 million in 2023. This figure is projected to increase by about 6 million, reaching 221.5 million by 2024. Over the past year, the user base has grown by approximately 8 million, bringing the total number of internet users in Indonesia in 2025 to an estimated 229.4 million. This growth in users not only indicates the widespread adoption of digital technology but also

underscores a significant shift in societal behavior, as people increasingly rely on the internet for various purposes, ranging from communication to economic activities.

Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in the processes of innovation and entrepreneurship. MSMEs often operate with higher levels of risk compared to large companies, yet they also offer great potential for economic growth and transformation. MSMEs not only serve as providers of goods and services but also as drivers of innovation that introduce new ideas and technologies (Ramadhani et al., 2025). According to E-Commerce Statistics (2024), the proportion of businesses utilizing the internet for sales transactions has continued to rise year over year; 43.02% of businesses in 2024 conducted online sales. This proportion increased by 0.52 percentage points compared to the previous year; however, 57.98% of businesses in Indonesia still do not utilize online platforms for sales transactions.

One of the government's programs to improve the profitability of MSMEs is to encourage them to digitize their businesses. This effort is grounded in the Sustainable Development Goals (SDGs), which aim to achieve inclusive and sustainable economic growth and strengthen the technological capabilities of small and medium-sized enterprises (Aminah et al., 2025).

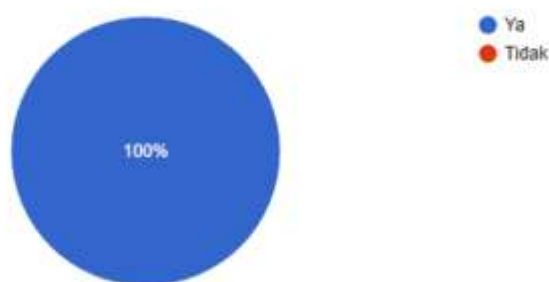


Figure 1. Survey Data on MSME Owners Participating in Digital Marketing Training Organized by the Medan City Department of Cooperatives, MSMEs, Industry, and Trade in Collaboration with Lazada Indonesia

Although they have participated in digital marketing training, the use of digital technology by MSMEs under the guidance of the Medan City Department of Cooperatives, SMEs, Industry, and Trade remains suboptimal. Data from the Denai IKM Service Center (UPT) indicates that out of 100 participants in the digital marketing training program conducted in collaboration with Lazada, only 25 SMEs joined the Lazada platform, 45 SMEs are already selling online, 13 SMEs are still selling offline, and 17 SMEs did not provide post-training feedback. Results from interviews conducted via Google Forms indicate that differing understandings of digital marketing, limited digital literacy, concerns about the risk of fraud, and a preference for conventional marketing systems are factors hindering the adoption of digital marketing. These findings align with research by Iskandar (2025) and Hidayat (2023), which states that low digital literacy, time constraints, and limited technological proficiency remain the main obstacles to the digital transformation of SMEs.

To explain this phenomenon, this study employs the Technology Acceptance Model (TAM), which focuses on two main constructs: *Perceived Usefulness* (PU) and *Perceived Ease of Use* (PEOU). The study does not include the variables *Attitude Toward Using* (ATU) and *Behavioral Intention to Use* (BI) because both are positioned as mediating variables; thus, the research focus is directed toward the direct influence of perceived usefulness and perceived ease of use on digital marketing adoption. Additionally, digital marketing training was positioned as a moderating variable expected to strengthen the relationship between PU and PEOU and the adoption of digital marketing. This approach was chosen to ensure the research model is simpler, more relevant, and better suited to the conditions of SMEs, which are still in the early stages of technology adoption.

Digital marketing training is viewed as a strategic tool for enhancing the digital competencies of SME operators through

mastery of concepts and technical skills, such as the use of social media, *marketplaces*, *Search Engine Optimization* (SEO), content creation, and digital marketing analysis. However, interview results indicate that most participants still require ongoing guidance to effectively implement the training material. Therefore, training that is conducted regularly, is adaptive, and includes hands-on practice is a critical need, particularly for older SME owners with limited digital skills. These findings are supported by research by D. P. Sari et al. (2025) and Chaidir & Yasin (2026), which demonstrates that ongoing training can enhance digital competencies and promote more effective use of digital marketing.

A number of previous studies have also shown that the application of the Technology Acceptance Model (TAM) in the context of digital marketing yields varied results. Alviany et al. (2025) found that *perceived ease of use* significantly influences the intention to use technology, whereas *perceived usefulness* did not show a significant influence. Research by Sinurat & Sugiyanto (2022) indicates that perceived usefulness (PU) and perceived ease of use (PEOU) influence *attitudes toward using technology*, while M. P. Putri et al. (2025) demonstrate that digital marketing has a positive impact on consumer behavior. Meanwhile, Basiroh & Irwanto (2025) found that perceived usefulness is influenced by *social influence*, whereas experience with social media does not act as a moderator. These differing research results indicate an empirical gap that opens opportunities to re-examine the TAM model by incorporating digital marketing training as a moderating variable.

Based on the above description, this study aims to analyze the influence of *Perceived Usefulness* and *Perceived Ease of Use* on the adoption of digital marketing among MSME operators under the guidance of the Medan City Department of Cooperatives, MSMEs, Industry, and Trade, with digital marketing training as a moderating variable. The study focuses on 100 MSME operators from the culinary, fashion, and handicraft sectors who participated in digital marketing training in collaboration with Lazada. The research findings are expected to contribute theoretically to the development of the Technology Acceptance Model (TAM) and serve as a basis for formulating more effective policies and training programs to enhance the digital capabilities and competitiveness of MSMEs in the digital economy era

Digital Marketing Adoption

Digital marketing encompasses all marketing efforts that utilize electronic tools and the internet, such as SEO, SEM, social media, content, and email. *Digital marketing* also has a broader scope because it refers to digital media. Terms in digital marketing cover various concepts, including *digital marketing*, *internet marketing*, *online marketing*, *e-business*, *e-commerce*, *e-marketing*, as well as *e-purchasing* or *e-procurement*. In addition, there are various metrics and strategies commonly used in digital marketing practices, such as *bounce rate*, *click-through rate* (CTR), *engagement*, *affiliate marketing*, *conversion rate*, *backlinks*, *pay-per-click* (PPC), *impressions*, *call to action* (CTA), and *campaigns* (F. M. A. Putri et al., 2024). According to Yoenardi & Kembau (2025), the indicators of *digital marketing* adoption are:

Accessibility, Interactivity, Entertainment, Credibility, Irritation, and Informativeness.

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is based on a strong and influential theoretical foundation, namely the *Theory of Reasoned Action* (TRA) introduced by Fishbein and Ajzen in 1975. In explaining individual and organizational interest in technology adoption, TAM emphasizes two main constructs: *perceived usefulness* and *perceived ease of use* (Andara & Rozi, 2025). The *Theory of Reasoned Action* (TRA) is a theory of reasoned behavior. This theory is based on the fundamental assumption that humans behave in a conscious manner and take all available information into account. The *Theory of Planned Behavior* (TPB) is a further development of TRA. In 1988, Ajzen added a construct that was missing from TRA—behavioral control—and the *Technology Acceptance Model* (TAM) was subsequently developed in 1989, following initial exploration by Davis in 1985. TAM is a key concept for predicting whether a newly implemented information system will be accepted (Zed et al., 2025). The indicators of *Perceived Usefulness* (PU) and *Perceived Ease of Use* (PEOU) were discussed in the research by Venkatesh and Bala (Aguspriyani et al., 2023). *Perceived Usefulness* (PU) (Work Productivity, Effectiveness, Improved Performance, Usefulness). *Perceived Ease of Use* (PEOU) (Easy to use, Easy to understand, Requires no extra effort, and Flexible in use).

Digital Marketing Training

According to Kasmir in P. M. Putri & Marlien (2022), training is a structured process designed to develop and equip employees by broadening their horizons and enhancing their skills, knowledge, and behavior. One practical solution for micro, small, and medium-sized enterprises (MSMEs) to increase sales and expand their market reach is through digital marketing training. This training not only provides an understanding of the basic concepts of digital marketing but also equips participants with practical skills, such as social media management, digital content optimization, online store management, and the use of data analytics as a basis for business decision-making (Waruwu et al., 2022). According to Kasmir in Andara & Rozi (2025), the indicators of *digital marketing training* are as follows: Participants, Trainers, Materials, Training Duration, and Training Goals and Objectives.

The following is a theoretical framework outlined by the author to facilitate understanding of the direction and objectives of this study, as shown in the figure below.

The conceptual framework model above explains the independent variables in the *Technology Acceptance Model* (TAM), namely the core component (X1), *Perceived Usefulness* (PU) (X2), *Perceived Ease of Use* (PEOU), along with the dependent variables, namely *Digital Marketing Adoption* (Y) and *Digital Marketing Training* (Z) as a moderating variable. Based on this figure, the research hypotheses are formulated as follows:

- 1) H_{a1} : *Perceived Usefulness* (PU) has a significant effect on *Digital Marketing Adoption* among MSMEs.

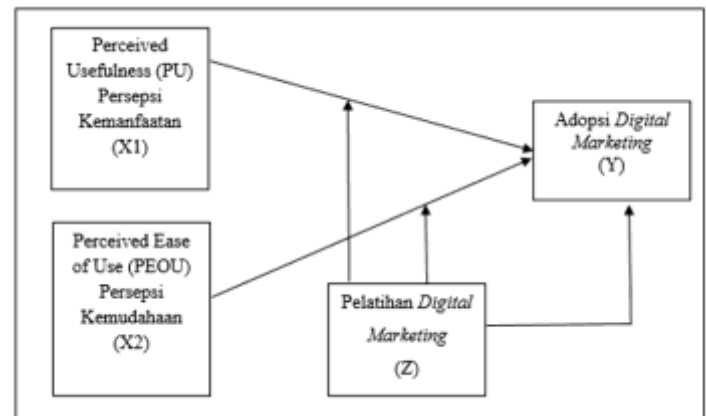


Figure 2. Conceptual Framework Diagram

- 2) H_{a2} : *Perceived Ease of Use* (PEOU) has a significant effect on *Digital Marketing Adoption* among MSMEs.
- 3) H_{a3} : *Digital marketing training* has a significant effect on the adoption of *digital marketing* among MSMEs.
- 4) H_{a4} : *Perceived Usefulness* (PU) has a significant effect on the adoption of *digital marketing* by MSMEs, with digital marketing training serving as a moderating variable.
- 5) H_{a5} : There is a significant effect of *Perceived Ease of Use* (PEOU) on the adoption of *digital marketing* among MSMEs, with digital marketing training as a moderating variable

RESEARCH METHOD

Research Design

This study was conducted among 100 MSME entrepreneurs under the guidance of the Medan City Cooperative, SME, Industry, and Trade Office who participated in digital marketing training with Lazada Indonesia in 2026. The technique used in this study was total sampling, in which the entire population was used as the research sample in accordance with the research needs. According to Sugiyono (2020), total sampling is a sampling technique in which the sample size is equal to the population; therefore, since the population consisted of 100 SME operators under the guidance of the Medan City Department of Cooperatives, SMEs, Industry, and Trade who participated in digital marketing training with Lazada Indonesia across three sectors—Culinary, Fashion, and Crafts—the entire group was used as the research sample.

In this study, the questionnaire was created using Google Forms and then distributed via a link shared through the WhatsApp app. The questionnaire used a Likert scale as a measurement tool to assess respondents' responses to each statement provided. Data analysis was conducted using the SmartPLS statistical software. Data analysis using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with the assistance of the SmartPLS application was carried out through several sequential stages. The first stage involved entering the data and building a model of the relationships between latent variables and their indicators in SmartPLS. Next, the measurement model (outer model) was evaluated to

ensure the research instrument met the criteria for validity and reliability through tests of factor loadings, Average Variance Extracted (AVE), discriminant validity (cross-loadings or HTMT), Cronbach's Alpha, and composite reliability. Once the measurement model is deemed to meet the requirements, the structural model (inner model) is evaluated by analyzing the R-squared (R^2) value to assess the ability of the independent variables to explain the dependent variable. The next step is to perform bootstrapping to test the significance of the relationships between variables using path coefficients, t-statistics, and p-values, thereby determining whether the research hypothesis is accepted or rejected.

II. RESULTS AND DISCUSSION

A measurement model, or outer model, is a model that describes the relationship between a latent variable and its respective indicators. Evaluation of a reflective measurement model is conducted through construct validity testing, which includes convergent validity and discriminant validity, as well as reliability testing. Meanwhile, in formative measurement models, the testing does not focus on the concepts of reliability or construct validity as in reflective models, but rather emphasizes the contribution of each indicator in forming the latent variable (Ole et al., 2025).

Convergent validity testing is conducted by examining two main parameters: factor loadings and Average Variance Extracted (AVE). An indicator is considered valid if it has a factor loading > 0.7 , which is considered high, while a construct is considered valid if the Average Variance Extracted (AVE) reaches > 0.5 (Priyanti et al., 2026).

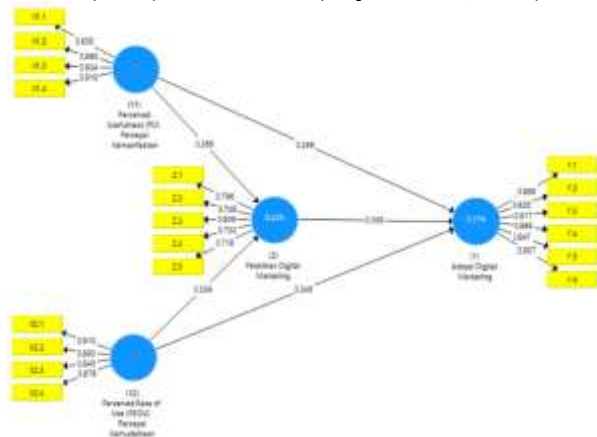


Figure 3. Factor Loadings

Source: Researcher's data analysis, 2026

The figure above shows that there are data points with *factor loadings* > 0.70 . This indicates that all indicators are valid and meet the ideal criteria for measuring their respective latent constructs. Thus, the obtained data can proceed to the next stage of analysis.

Table 1. Other Loadings

Number of Indicators	Perceived Usefulness (PU) (X1)	Perceived Ease of Use (PEOU) (X2)	Digital Marketing Adoption (Y)	Digital Marketing Training (Z)
X1.1	0.830			
X1.2	0.890			
X1.3	0.934			
X3.4	0.910			
X2.1		0.910		
X2.2		0.893		
X2.3		0.840		
X2.4		0.879		
Y1			0.886	
Y2			0.826	
Y3			0.917	
Y4			0.869	
Y5			0.847	
Y6			0.857	
Z1				0.796
Z2				0.756
Z3				0.806
Z4				0.732
Z5				0.718

Source: Researcher's Primary Data Analysis, 2026

Based on the outer loading results above, it is evident that all indicators within each construct have loading factors greater than 0.70. Thus, it can be concluded that all indicators meet the criteria for convergent validity, and these indicators are therefore deemed valid in representing the constructs being measured.

Table 2. AVE Results

Matrix	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted
	Cronbach's Al...	rho_A	Composite Rel...	Average Variance Extracted (A...
(X1)_Perceived...	0.914	0.915	0.940	0.796
(X2)_Perceived ...	0.904	0.908	0.933	0.776
(Y)_Adopsi Dig...	0.934	0.935	0.948	0.753
(Z)_Pelatihan ...	0.819	0.825	0.873	0.579

Source: Researcher's Primary Data Analysis, 2026

Based on the *Average Variance Extracted* (AVE) values above, which are greater than 0.5, it can be concluded that all indicators have met the criteria. Therefore, these indicators are deemed valid and suitable for use in measuring the research constructs.

The discriminant validity test using reflection indicators involves examining *cross-loading* values, which is done by comparing the correlation of an indicator with its own construct and with other constructs. If an indicator's correlation is higher with its own construct than with other constructs, then that construct is deemed valid.

Table 3. Cross-Loading Values

Jumlah Indikator	Perceived usefulness (PU) Persepsi kemanfaatan (X1)	Perceived ease of use (PEOU) persepsi kemudahan (X2)	Adopsi Digital Marketing (Y)	Pelatihan Digital Marketing (Z)
X1.1	0.830	0.539	0.704	0.582
X1.2	0.890	0.677	0.661	0.517
X1.3	0.934	0.752	0.721	0.577
X3.4	0.910	0.708	0.696	0.531
X2.1	0.710	0.910	0.675	0.522
X2.2	0.742	0.893	0.727	0.575
X2.3	0.539	0.840	0.615	0.492
X2.4	0.639	0.879	0.755	0.565
Y1	0.785	0.686	0.886	0.627
Y2	0.689	0.697	0.826	0.615
Y3	0.732	0.732	0.917	0.673
Y4	0.659	0.626	0.869	0.687
Y5	0.620	0.661	0.847	0.714
Y6	0.572	0.714	0.857	0.623
Z1	0.495	0.504	0.674	0.796
Z2	0.516	0.513	0.648	0.756
Z3	0.481	0.445	0.561	0.806
Z4	0.397	0.339	0.439	0.732
Z5	0.447	0.500	0.505	0.718

Source: Researcher's Primary Data Analysis, 2026

The cross-loading values in the table above show that the cross-loading values for each indicator correlate more strongly with their respective constructs than with other constructs; therefore, it can be concluded that the cross-loading values demonstrate good discriminant validity.

Table 4. Fornell-Larcker Criterion Test

	(X1)_Perceived...	(X2)_Perceived...	(Y)_Adopsi Di...	(Z)_Pelatih...
(X1)_Perceived...	0.892			
(X2)_Perceived ...	0.750	0.881		
(Y)_Adopsi Dig...	0.781	0.791	0.868	
(Z)_Pelatihan ...	0.620	0.614	0.757	0.7

Source: Researcher's Primary Data Analysis, 2026

From the table above, it can be concluded that the variables in this study meet the criteria because the Fornell-Larcker values for each variable are greater than the correlation between any two variables in the model.

Table 5. Cronbach's Alpha

Variabel	Cronbach's Alpha	Indikator	Kesimpula
Perceived usefulness (PU) Persepsi kemanfaatan (X1)	0.914	> 0.70	Reliabel
Perceived ease of use (PEOU) persepsi kemudahan (X2)	0.904	> 0.70	Reliabel
Adopsi Digital Marketing (Y)	0.934	> 0.70	Reliabel
Pelatihan Digital Marketing (Z)	0.819	> 0.70	Reliabel

Sumber: Olah Data Primer Peneliti, 2026

The table above shows the results of the reliability test using Cronbach's alpha, which yielded a value greater than 0.70. Therefore, it can be concluded that all construct variables and indicators in this study are reliable because their values exceed the minimum threshold. Because their values exceed the minimum threshold.

Table 6. Composite Reliability

Variabel	Composite Reliability	Indikator	Kesimpulan
Perceived usefulness (PU) Persepsi kemanfaatan (X1)	0.940	> 0.70	Reliabel
Perceived ease of use (PEOU) persepsi kemudahan (X2)	0.933	> 0.70	Reliabel
Adopsi Digital Marketing (Y)	0.948	> 0.70	Reliabel
Pelatihan Digital Marketing (Z)	0.873	> 0.70	Reliabel

Sumber: Olah Data Primer Peneliti, 2026

Based on the table above, all variables in this study have a Composite Reliability value > 0.70. This indicates that all indicators used have met the reliability criteria. Thus, it can be concluded that the indicators in this study are consistent in measuring the constructs under investigation, so the research instrument can be considered reliable.

Structural Model Evaluation (Inner Model): Testing this model aims to identify and examine the relationships between exogenous and endogenous variables in a study. Structural model testing is conducted as follows:

Table 7. R-Square Values

Matrix	R Square	R Square Adjusted
(Y)_Adopsi Digital Marketing	0.779	0.772
(Z)_Pelatihan Digital Marketing	0.435	0.423

Source: Researcher's Primary Data Analysis, 2026

Based on the table above, it is evident that the Adjusted R-Square value for the model is 0.772. This means that the ability of the exogenous variables to explain Y is 77.2% (strong), so it can be said that the ability of the variables Perceived Usefulness (PU) (X1) and Perceived Ease of Use (PEOU) (X2) to explain digital marketing adoption is strong at 77.2%, while the remaining 22.8% is attributed to the influence of other independent variables not measured in this study.

Table 8. Q2 Results

Variabel	SS0	SSE	Q ² (=1-SSE/SS0)
Perceived usefulness (PU) Persepsi kemanfaatan (X1)	400.000	400.000	
Perceived ease of use (PEOU) persepsi kemudahan (X2)	400.000	400.000	
Adopsi Digital Marketing (Y)	600.000	253.007	
Pelatihan Digital Marketing (Z)	500.000	381.310	0.578

Sumber: Olah Data Primer Peneliti, 2026

Based on the results of the blindfolding test in the table above, the Q2 value for digital marketing adoption is 0.578. Based on this calculation, it can be concluded that the predictive relevance of Q2 is considered good because its value is greater than 0.

Table 9. Goodness of Fit

Variabel	R-Square	Communality
Perceived usefulness (PU) Persepsi kemanfaatan (X1)		0.796
Perceived ease of use (PEOU) persepsi kemudahan (X2)		0.776
Adopsi Digital Marketing (Y)		0.753
Pelatihan Digital Marketing (Z)		0.759
Rata-Rata	0.779	0.771

Sumber: Olah Data Primer Peneliti, 2026

$$Gof = \sqrt{COMxR^2}$$

$$Gof = \sqrt{0.779 \times 0.771}$$

$$GoF = \sqrt{0.600} = 0.775$$

The GoF value calculated above, when expressed as the square root, is 0.775, indicating a high GoF. Thus, it can be concluded that this research model is valid and performs well.

This analysis is used to test hypotheses regarding the effect of an exogenous variable on an endogenous variable. If the *path coefficient* is positive, the relationship is direct, meaning that an increase in the exogenous variable will be followed by an increase in the endogenous variable. Conversely, if the *path coefficient* is negative, the relationship is inverse; that is, an increase in the exogenous variable will cause a decrease in the endogenous variable.

Table q0. Path Coefficients

	Original Sample	Sample Mean	Standard Deviation	T-Statistics (O /S)	P-Values
(X1) Perceived Usefulness (PU) Persepsi Kemanfaatan → (Y) Adopsi Digital Marketing	0.299	0.112	0.088	3.490	0.001
(X1) Perceived Usefulness (PU) Persepsi Kemanfaatan → (Z) Pelatihan Digital Marketing	0.396	0.176	0.116	3.350	0.001
(X2) Perceived Ease of Use (PEOU) Persepsi Kemudahan → (Y) Adopsi Digital Marketing	0.346	0.133	0.083	4.157	0.000
(X2) Perceived Ease of Use (PEOU) Persepsi Kemudahan → (Z) Pelatihan Digital Marketing	0.339	0.133	0.126	2.683	0.008
(Z) Pelatihan Digital Marketing → (Y) Adopsi Digital Marketing	0.359	0.139	0.091	3.982	0.000

Source: Researcher's Primary Data Analysis, 2026

Based on the path coefficients table above, it can be concluded that:

Hypothesis 1: That the variable *Perceived Usefulness* (PU) (X1) has a positive effect on *Digital Marketing Adoption* (Y), with a path coefficient of 3.490 and a P-value of $0.001 < 0.05$, indicating that this effect is statistically significant. This indicates that the more positive the perception of the benefits of *digital marketing* training among MSME actors is regarding *digital marketing* adoption, the higher the level of *digital marketing* adoption among MSME actors.

Hypothesis 2: The variable *Perceived Ease of Use* (PEOU) (X2) has a positive effect on *Digital Marketing Adoption* (Y), with a path coefficient of 4.157 and a P-value of $0.000 < 0.05$; therefore, this effect is considered significant. This indicates that the more positive the perception of the ease of *digital marketing* training among SME operators regarding *digital marketing* adoption, the higher the level of *digital marketing* adoption among these operators.

Hypothesis 3: *Digital marketing* training (Z) has a positive effect on *digital marketing* adoption (Y), with a path coefficient of 5.892 and a P-value of $0.000 < 0.05$; therefore, this effect is considered significant. This indicates that the

more positively SME operators perceive the ease of *digital marketing* training, the higher their adoption of *digital marketing*.

Hypothesis 4: The interaction between *Perceived Usefulness* (PU) (X1) and *Digital Marketing Training* (Z) on *Digital Marketing Adoption* (Y) must have a t-statistic greater than 1.96, showing a coefficient value of 3.150 with a positive direction and a P-value of $0.002 < 0.05$, thereby indicating that the effect is significant. This means that it has been proven that *Digital Marketing Training* strengthens the relationship between *Perceived Usefulness* (PU) and *Digital Marketing Adoption*.

Hypothesis 5: The interaction between *Perceived Ease of Use* (PEOU) (X2) and *Digital Marketing Training* (Z) on *Digital Marketing Adoption* (Y) yielded a t-statistic greater than 1.96, indicating a coefficient of 2.683 with a positive direction and a P-value of $0.008 < 0.05$, thereby indicating that the effect is significant. This means that it has been proven that *Digital Marketing Training* strengthens the relationship between *Perceived Ease of Use* (PEOU) and *Digital Marketing Adoption*.

The Effect of Perceived Usefulness (PU) (X1) on Digital Marketing Adoption (Y)

The results of the testing and data analysis in this study indicate that *Perceived Usefulness* (PU) (X1) has a significant effect on *Digital Marketing Adoption* (Y). This is evidenced by a t-statistic value of 3.490 and a significance level of 0.001. Thus, it can be concluded that H_{a1} is accepted and H_{o1} is rejected. The more positive MSME actors are about participating in *digital marketing* training, the greater their understanding of *digital marketing* will be; this means that MSME actors can adopt *digital marketing* optimally, and of course, they can utilize digital platforms—which are performance systems focused on the sale of goods and services, as well as promotion—by leveraging technology as the primary supporting tool within these systems. The results of this study are consistent with the findings of Pusfitaningrum et al. (2022). *Perceived Usefulness* (PU) demonstrates that the majority of respondents recognize the benefits of IoT in improving efficiency, productivity, and the quality of agricultural yields; thus, perceived usefulness is a key driving factor in technology adoption.

The Effect of Perceived Ease of Use (EOU) (X2) on Digital Marketing Adoption (Y)

The results of the testing and data analysis in this study indicate that *Perceived Ease of Use* (PEOU) (X2) has a significant effect on *Digital Marketing Adoption* (Y). This is evidenced by a t-statistic value of 4.157 and a significance level of 0.000. Thus, it can be concluded that H_{a2} is accepted and H_{o2} is rejected. The more positive MSME actors are about participating in *digital marketing* training, the easier it will be for them to understand *digital marketing* concepts; naturally, they will adopt *digital marketing*, which is inevitably influenced by the changing times in the modern era. The most visible and tangible aspect of this is a change in lifestyle; if a negative attitude toward adopting technological changes takes hold, it will cause MSME actors to fall behind their peers who

have already implemented *digital marketing* systems. The results of this study align with the findings of Mulyanto et al. (2020). *Perceived ease of use* (PEOU) shapes changes in public behavior toward technology; the sustainability of digital marketing can be concluded to have a significant impact on digital marketing, leading to higher sales and greater consumer satisfaction with service and ease of transactions.

The Effect of Digital Marketing Training (Z) on Digital Marketing Adoption (Y)

The results of the testing and data analysis in this study indicate that *digital marketing* training (Z) has a significant effect on the adoption of *digital marketing* (Y). This is evidenced by a t-statistic value of 5.892 and a significance level of 0.000. Thus, it can be concluded that H_{a3} is accepted and H_{o3} is rejected. The more positive MSME actors are about participating in *digital marketing* training, the greater their understanding of digital marketing—which offers enormous opportunities—will become; its success depends on digital skills, the ability to create engaging content, and the use of effective analytics. The adoption of digital technology has been shown to have a positive impact on business performance; however, on the downside, if MSME actors market content that is unappealing to consumers, it may not necessarily align with the products they offer. The results of this study align with the findings of Christiana et al. (2024), which demonstrated that innovation has a positive influence on marketing performance. Therefore, SME owners should continue to hone their skills to deepen their understanding of *digital marketing* through training programs that incorporate rational-strategic considerations in their efforts to adopt *digital marketing*, thereby supporting increased SME revenue. As reported by Radio Republik Indonesia (2025), Adel expressed appreciation for the SME Digital Strategy training organized by the Medan City Government in collaboration with Lazada. According to her, the program provided new knowledge as well as motivation to develop her business more seriously; this training is highly beneficial in helping us understand how to improve our businesses. Adel's story serves as a real-life example of the resurgence of SME operators in Medan who are beginning to transform their businesses. With the support of digital training and ongoing programs from the City Government of Medan, SMEs are expected not only to survive but also to thrive and become the driving force of the local economy.

The Effect of Perceived Usefulness (PU) (X1) on Digital Marketing Adoption (Y), with Digital Marketing Training (Z) as a Moderating Variable

The results of data analysis in this study indicate that *digital marketing* training does not moderate the effect of *Perceived Usefulness* (PU) on *digital marketing* training. This is evidenced by a t-statistic of 3.150 and a p-value of 0.002. Therefore, it can be concluded that H_{a4} is accepted and H_{o4} is rejected. The results of this study indicate that *Perceived Usefulness* (PU) plays a significant role in strengthening the relationship between *digital marketing* adoption and *digital marketing* training by exerting a direct positive influence on *digital marketing* adoption. This, in turn, has a strong effect on *digital marketing* training because *such* training is

provided to enhance understanding and proficiency in *digital marketing*, thereby encouraging MSME practitioners to adopt *digital marketing*. In other words, *digital marketing* is something that is beneficial and practical for digital marketing activities. The results of this study align with the findings of Juniarto (2024). These findings indicate that internet literacy significantly strengthens or influences the effect of perceived usefulness on the interest in using e-filing; therefore, it can be concluded that internet literacy, as a moderating variable, significantly influences the effect of perceived usefulness on the interest in using e-filing. Therefore, MSME actors' understanding of *digital marketing* after the training has improved, enabling them to make optimal use of *digital marketing* by adopting it to increase (online) sales.

The Effect of Perceived Ease of Use (PEOU) (X2) on Digital Marketing Adoption (Y), with Digital Marketing Training (Z) as a Moderating Variable

The results of data testing and analysis in this study indicate that *digital marketing* training moderates *Perceived Ease of Use* (PEOU) regarding *digital marketing* training. This is evidenced by a t-statistic of 2.683 and a p-value of 0.008. Therefore, it can be concluded that H_{a5} is accepted and H_{o5} is rejected. The results of this study indicate that *Perceived Ease of Use* (PEOU) plays a significant role in strengthening the relationship between *digital marketing adoption* and *digital marketing* training—a structured learning process conducted during a one-day *digital marketing* training session aimed at enhancing the capabilities of MSME entrepreneurs by emphasizing an understanding of digital marketing concepts. By exerting a direct positive influence on *digital marketing* adoption, it has a strong effect on *digital marketing* training; certainly, during the one-day training program, SME entrepreneurs found it easier to understand the program content, which was designed to assist business owners in keeping pace with technological developments. The results of this study align with the findings of Priyanti et al. (2026), which demonstrate that *personalization* moderates the influence of *Perceived Ease of Use* (PEOU) on *Intention to Use*; personalized experiences can simplify the process of using an application, thereby ultimately strengthening the influence of perceived ease of use on the intention to use. When users feel that Gemini has been tailored to their preferences, their tendency to continue using it will also increase. Therefore, through *digital marketing* training, MSME entrepreneurs are expected to strengthen their business capacity, improve product quality and marketing strategies, and optimize the use of digital platforms to facilitate market expansion.

III. CONCLUSIONS

The results of this study indicate that perceived usefulness, perceived ease of use, and digital marketing training have a positive and significant effect on the adoption of digital marketing. Furthermore, digital marketing training was also found to act as a moderating variable that strengthens the influence of perceived usefulness and perceived ease of use on the adoption of digital marketing. These findings indicate

that the higher the perception of the benefits and ease of use of the technology—supported by adequate digital marketing training—the higher the level of digital marketing adoption among business owners. Thus, all research hypotheses (H1–H5) are accepted.

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