

## **Development of the HELO UMKM Website Based on Geomarketing Insight to Improve Digital Marketing Effectiveness through Digital Marketing Literacy and Perceived Quality**

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**Abstract:** Digital transformation is a strategic need for MSMEs, but the use of digital technology is still not optimal and rarely integrates geomarketing insights with digital marketing literacy. This study aims to develop a HELO UMKM Website based on geomarketing insight and analyze the influence of Geomarketing Insight on Digital Marketing Effectiveness by mediating Digital Marketing Literacy and Perceived Quality. The research uses the ADDIE model Research and Development (R&D) approach on 150 student business actors who will receive UM Super funding at the State University of Malang in 2025. Data were analyzed using SEM-PLS and Wilcoxon Signed Rank Test. The results of the study show that Geomarketing Insight has the potential to support Digital Marketing Effectiveness mediated by increasing Digital Marketing Literacy which strengthens Perceived Quality. The Wilcoxon test showed that there was no significant difference between the pretest and the posttest. The novelty of the research lies in the development of the HELO UMKM Website which integrates Geomarketing Insights, digital marketing literacy, and perceived quality in one website to support data-driven MSME digital marketing.

**Keywords:** website HELO UMKM; geomarketing insight; digital marketing literacy; perceived quality; digital marketing effectiveness

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### **INTRODUCTION**

Digital transformation is a strategic need for MSMEs in maintaining sustainability and increasing business scale, considering its contribution which reaches 61% to national GDP and absorbs around 97% of the workforce (Hartarto, 2021). The majority of MSMEs are still at the basic level of digital adoption, such as accessing social media or online markets without fully utilizing the data-driven digital ecosystem (Rahim et al., 2023). Intuitive and unstructured marketing techniques can result in inefficient resource allocation (Purnama, 2025:71). This lack of skills makes it harder for small and medium sized businesses to compete in a market that is becoming more competitive (Bahri, 2025:17).

Malang serves as a prime illustration of the burgeoning creative economy within East Java. The expansion of small and medium-sized enterprises (SMEs) is fostered through collaborative

initiatives that integrate the educational and tourism sectors, alongside the Malang Creative Fusion (MCF) program, which is predicated on pentahelix collaboration (Dwiastanti, 2025). This imperative is underscored by research indicating that comprehensive digital technology adoption can potentially augment income by as much as 26% while simultaneously reducing production costs by 44% (Basuki, 2021).

The results of the needs analysis through interviews with UM Super students in 2025 show that there are crucial obstacles, such as the lack of optimal use of digital marketing, difficulties in finding suppliers of raw materials efficiently because they still rely on informal word-of-mouth information, limited ability to design attractive slogans and promotional designs, and lack of access to free and relevant marketing education materials. UM Super actors also said that practical, innovative, and integrated tools ranging from crowd point mapping features, creative promotional content support, to educational materials to improve digital literacy. Previous research has shown that geomarketing can increase marketing effectiveness and make market segmentation more precise (Benbrahim Ansari, 2021). Digital literacy and marketing are essential to improve the performance of small and medium-sized enterprises (SMEs) and facilitate their readiness for digital transformation (Moorthy & Sahid, 2022).

This study suggests creating a digital website that uses interactive maps to visualize the MSME business environment, based on geomarketing insights. This website would help with data-driven decisions and make it easier to find market opportunities (Ohyver, 2024). The main goal of this website is to improve the effectiveness of Digital Marketing strategies, thus helping MSMEs achieve their overall digital marketing goals (Arif et al., 2025). This empowerment also wants to help local products in the creative industry become stronger (Dhewi et al., 2024). Digital Marketing Literacy is what makes the digitalization of SMEs successful. This statement connects using technology with marketing savvy (Rochmawati et al., 2025). Perceived quality influences the way people think about the quality of websites, which makes people use them and makes digital marketing more effective (Fauzi & Sheng, 2022; Santika et al., 2022; Kadek & Sulindawati, 2022).

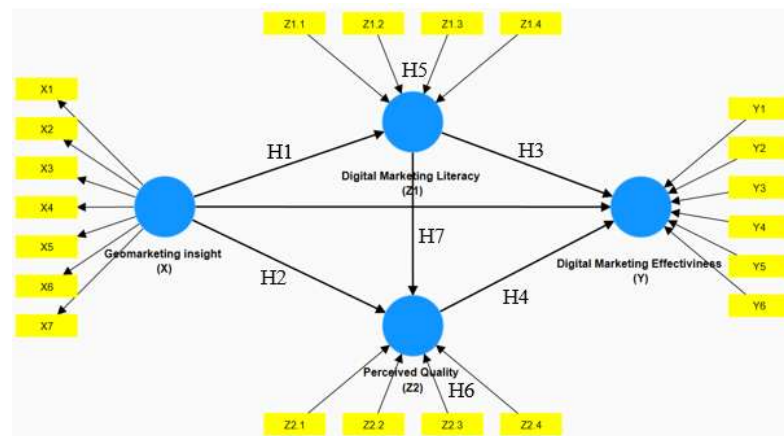
Studies on Perceived Quality generally highlight its influence on trust, loyalty, and digital marketing performance (Sharafuddin et al., 2024). Previous research is still partial because it tests more directly between marketing variables separately. To date, there has been no research that integrates Geomarketing Insight, Digital Marketing Literacy, Perceived Quality, and Digital Marketing Effectiveness in one model of empowering MSMEs based on digital websites. Previous research also tends to focus on the aspect of technology adoption without presenting a digital marketing platform that can be used directly by MSMEs as a tool to support data-based marketing decision-making. Applications that are applicable and empowerment-oriented innovations are important to encourage independence, innovation, and technological adaptation to support the sustainability of MSMEs (Rahayu et al., 2023).

Based on these gaps, this research presents novelty through the development of the HELO MSME Website as an all-in-one digital marketing technology and intervention product that integrates geomarketing insight, digital marketing literacy education, location-based market mapping, digital marketing planner, and AI-based promotion to support the effectiveness of MSME digital marketing in a more directed, adaptive, and data-based manner. Some of the cases above that have been described are finally interested in conducting a research entitled "Development of HELO UMKM Website Based on Geomarketing Insights of Digital Marketing Effectiveness Through Digital Marketing Literacy and Quality of Perception"

## METHOD

In this research uses Research and Development (R&D) with quantitative methods to develop and test the effectiveness of the HELO UMKM Website based on Geomarketing Insight. The development process uses the ADDIE model which includes four steps is Analysis, Design, Development, Implementation, Evaluation (Branch, 2009). The total population is 208 UM Super Batch VI students in 2025 who run businesses. The sample was determined using purposive sampling techniques with the respondent criteria being UM Super Batch VI Students in 2025, active business actors and have used digital media for marketing.

The determination of the sample size was carried out using a confidence level of 95% and a margin of error of 5% so that a minimum sample requirement of 113 respondents was obtained. However, the researcher increased the number of respondents to 150 respondents because this number was considered more adequate to anticipate the possibility of inconsistent data, outliers, or data that did not meet the feasibility of the SEM-PLS analysis on the use of the HELO UMKM website. The increase in the number of respondents was carried out because the study applied a relatively complex structural model with a chain mediating relationship between Geomarketing Insight, Digital Marketing Literacy, Perceived Quality, and Digital Marketing Effectiveness, so that a more stable sample size was needed so that the model estimation became more representative. Data was collected through questionnaires, interviews, and observations using the website with a five level Likert scale to measure the variables of Geomarketing Insight, Digital Marketing Literacy, Perceived Quality, and Digital Marketing Effectiveness with 7 Hypotheses as shown in Figure 1 below.



**Figure 1.** Research Hypothesis Model

Data analysis used SmartPLS software, version 4.1.0.9 with the Structural Equation Modeling–Partial Least Square (SEM-PLS) approach to analyze the direct, indirect, and chain mediation relationships between Geomarketing Insight, Digital Marketing Literacy, Perceived Quality, and Digital Marketing Effectiveness. The analysis began with an evaluation of the outer model, then continued with an evaluation of the inner model. Hypothesis testing was carried out using the bootstrapping technique to determine the statistical significance of direct and indirect influences, while the Sobel test was used to strengthen the testing of mediating effects. This study also uses the Wilcoxon Signed Rank Test with SPSS ver 24 software to analyze the difference in the effectiveness of the use of the HELO UMKM Website before and after product implementation because the data is ordinal and does not fully meet the assumption of normality. The final stage is carried out through classical completeness analysis to determine the success rate of website use

based on the percentage of achievement of digital marketing effectiveness. According to (Preacher & Leonardelli, 2010), a mediation effect is deemed statistically significant when the z-value exceeds 1.96 at the 5% significance level. The following formula was used to calculate the Sobel test statistic:

$$z = \frac{ab}{\sqrt{(b^2SE_a^2) + (a^2SE_b^2)}}$$

## RESULTS AND DISCUSSION

### Research Results

#### Development of the HELO UMKM Website

The HELO UMKM Website (All-in-One Digital Ecosystem for MSME Empowerment) was created as a result of this study. digital website HELO UMKM based on geomarketing insights which is designed to increase the Digital Marketing Effectiveness of MSMEs in one integrated digital ecosystem. The main novelty of this research lies in the transformation of the function of the website from just an information media to a strategic digital empowerment infrastructure that connects Geomarketing Insight, Digital Marketing Literacy, Perceived Quality formation, and AI based Marketing Support in one integrated system flow.

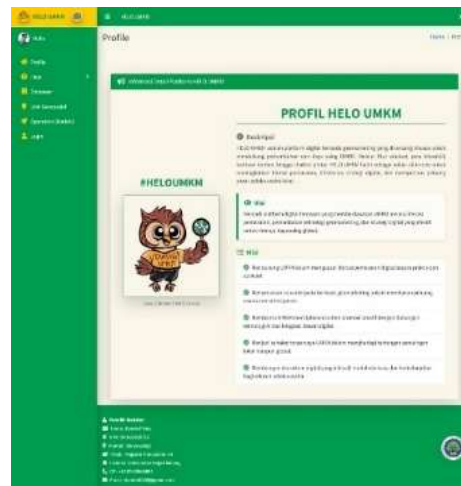


Figure 2. HELO UMKM Website

Figure 2 shows a responsive and user friendly website design that makes it easier for MSME actors to access various digital services through various devices. The integration of the main components in the website is visualized that this system is developed as an integrated digital ecosystem that combines the features of Help, Empower, Link, and Operational MarkAI to support the learning process, market analysis, and implementation of digital marketing strategies.



**Figure 3.** Features of the HELO UMKM Website

The implementation of the Geomarketing approach as the main contribution of this research is shown in figure 3 through Geospatial Link, which is an interactive map that provides information on the location of raw material suppliers and market crowded points so that MSME actors can conduct location-based market analysis in determining distribution and marketing strategies more precisely. Technological innovation in this website is also realized through the Operational MarkAI feature, which is an AI-based marketing assistant that helps MSME actors produce various promotional content such as social media captions, advertising slogans, and product descriptions automatically so that they can improve the quality of digital marketing communication and build perceived quality for the products marketed. The integration of spatial insight, digital marketing literacy, perceived quality enhancement, and AI-driven marketing tools in one website shows that HELO UMKM not only functions as an informative website, but as an integrated geomarketing based digital ecosystem that transforms geographic data into analytical capabilities, improves the quality of consumer perception of MSME products, and strengthens the effectiveness of digital marketing in a sustainable manner.

**SEM-PLS Outer Model Analysis  
Reflective Measurement Model**

Reflective measurements are carried out to ensure that each indicator is able to represent the research construct validly and reliably. The convergent validity test is carried out by looking at the outer loading value. The indicator is declared valid if it has a value above 0.70.

**Table 1.** Outer Loading Results

	<b>Geomarketing Insight (X)</b>	<b>Digital Marketing Effectiveness (Y)</b>	<b>Digital Marketing Literacy (Z1)</b>	<b>Perceived Quality (Z2)</b>
X1	0.794			
X2	0.829			
X3	0.791			
X4	0.829			
X5	0.742			
X6	0.833			
X7	0.864			
Y1		0.821		
Y2		0.708		
Y3		0.782		
Y4		0.561		
Y5		0.837		
Y6		0.764		
Z1.1			0.831	
Z1.2			0.762	
Z1.3			0.728	
Z1.4			0.733	
Z2.1				0.652
Z2.2				0.767
Z2.3				0.557
Z2.4				0.930

Based on Table 1, the indicators in the Geomarketing Insight construct show an outer loading value ranging from 0.742–0.864 so that all indicators are declared to meet the criteria of

convergent validity and are able to represent the construct well as a reflective latent variable. Meanwhile, in the constructs of Digital Marketing Effectiveness (DME), Digital Marketing Literacy (DML), and Perceived Quality (PQ), several indicators were found with relatively low outer loading values, such as Y4 (0.561), Z2.1 (0.652), and Z2.3 (0.557). This condition is influenced by the high variation in respondents' answers which is reflected in the standard deviation values of Y4 of 1.130, Z2.1 of 1.154, and Z2.3 of 1.134, so that the relationship between indicators and latent constructs becomes less strong than other indicators. In the Y4 indicator, variations in answers appeared because not all respondents used the Geodupreneurship material in the Empower feature as the main reference in developing a business promotion strategy. In the Z2.1 and Z2.3 indicators, the variation in responses was influenced by differences in user experience and ability to utilize the Template Planner Marketing and Canva Template features on the HELO UMKM Website. The indicators are maintained because the DME, DML, and PQ constructs are treated as formative constructs, so the evaluation of the indicators is not only based on the outer loading value, but also considers the outer weight, bootstrapping significance, and the value of the Variance Inflation Factor (VIF) (Aybek & Karakaş, 2026). In formative constructs, indicators function to form latent variables, not to reflect latent variables, so the elimination of indicators has the potential to reduce the conceptual scope of the research construct (Li & Wang, 2024).

To assess the convergent validity and internal consistency of the measurement model, we used Average Variance Extracted (AVE), Cronbach's Alpha, and Composite Reliability tests.

**Table 2.** AVE, Cronbach's Alpha, and Composite Reliability Results

	<b>Cronbach's alpha</b>	<b>Composite reliability (rho_c)</b>	<b>Average variance extracted (AVE)</b>
Geomarketing Insight (X)	0.914	0.931	0.661

The data analysis in the table 2 yielded a Cronbach's Alpha of 0.914, a Composite Reliability ( $\rho_c$ ) of 0.931, and an Average Variance Extracted (AVE) of 0.661 for the Geomarketing Insight construct (X). The indicators have great internal consistency because Cronbach's Alpha and Composite Reliability values are both above 0.70. The construct explains 66.1% of the variance in its indicators, which means it meets the criteria for convergent validity. The Geomarketing Insight construct is modeled as a reflective construct, which means that the indicators are seen as manifestations of a latent variable and need to be tested for internal consistency. On the other hand, these measures are not used to evaluate other constructs in the model because their indicators do not directly reflect a latent variable. These findings show that the Geomarketing Insight construct has met the criteria of convergent validity and construct reliability, making it feasible for use in subsequent structural analysis.

### **Formative Measurement Model**

The evaluation of formative constructs was conducted to ensure that each indicator functions as a contributing component in forming the latent variable. Unlike reflective constructs, formative indicators collectively shape the construct; therefore, the evaluation focuses primarily on multicollinearity testing using the Variance Inflation Factor (VIF) and the significance of indicator contributions through outer weights.

**Table 3.** Multicollinearity Test Results

	<b>VIF</b>
X1	3.194

X2	3.099
X3	2.663
X4	3.865
X5	1.979
X6	4.258
X7	5.006
Y1	2.566
Y2	2.690
Y3	1.839
Y4	1.636
Y5	1.816
Y6	4.125
Z1.1	1.594
Z1.2	1.388
Z1.3	1.421
Z1.4	1.557
Z2.1	1.559
Z2.2	1.498
Z2.3	1.592
Z2.4	1.881

The results of the multicollinearity test in Table 3 show that most of the indicators in the Digital Marketing Effectiveness, Digital Marketing Literacy, and Perceived Quality constructs have a Variance Inflation Factor (VIF) value below threshold 5, so there is no significant multicollinearity problem. In the Digital Marketing Effectiveness construct, the VIF value is in the range of 1,636–4,125, while in the Digital Marketing Literacy construct it ranges from 1,388–1,594 which indicates a low level of collinearity between indicators. Furthermore, the Perceived Quality construct has a VIF value ranging from 1,498–1,881 so that all indicators are considered to be able to make an independent contribution in forming the construct. In the Geomarketing Insight construct, an X7 indicator was found with a VIF value of 5.006 which slightly exceeded the general threshold of 5. This condition indicates a relatively high degree of collinearity between the X7 indicator and other indicators in the same construct, although the difference is very small and is still tolerable in the PLS-SEM analysis because it does not show extreme multicollinearity. The X7 indicator is maintained because it has strong conceptual relevance in representing the Geomarketing Insight dimension and is supported by a high outer loading value. The next stage of analysis is carried out through outer weight testing to evaluate the contribution of each indicator in shaping the research construct.

**Table 4.** Outer Weight Results

	<b>Geomarketing Insight (X)</b>	<b>Digital Marketing Effectiveness (Y)</b>	<b>Digital Marketing Literacy (Z1)</b>	<b>Perceived Quality (Z2)</b>
X1	0.137			
X2	0.196			
X3	0.201			
X4	0.161			
X5	0.158			
X6	0.183			
X7	0.192			
Y1		0.465		
Y2		0.127		
Y3		0.338		
Y4		-0.078		

Y5	0.430		
Y6	-0.068		
Z1.1		0.415	
Z1.2		0.364	
Z1.3		0.289	
Z1.4		0.227	
Z2.1			0.106
Z2.2			0.412
Z2.3			-0.079
Z2.4			0.709

Output in table 4 show about outer weight analysis indicates that indicators Y1 (0.465) and Y5 (0.430) contribute the most to the Digital Marketing Effectiveness construct, followed by Y3 (0.338). Meanwhile, Y2 (0.127) contributes less strongly, while Y4 (-0.078) and Y6 (-0.068) show negative weights, suggesting relatively weaker contributions. For the Digital Marketing Literacy construct, all indicators display positive weights, with Z1.1 (0.415) contributing the most, followed by Z1.2 (0.364), Z1.3 (0.289), and Z1.4 (0.227). These results indicate that the indicators consistently form the digital marketing literacy construct. In the Perceived Quality construct, Z2.4 (0.709) is identified as the most influential indicator, followed by Z2.2 (0.412). Meanwhile, Z2.1 (0.106) contributes relatively weakly, and Z2.3 (-0.079) shows a negative weight. overall the results demonstrate that formative indicators contribute differently in shaping their respective constructs, with several indicators showing stronger influence than others.

### SEM-PLS Inner Model Analysis

The structural model was evaluated using R-square ( $R^2$ ), Q-square ( $Q^2$ ), and F-square ( $f^2$ ) to determine the explanatory power of the model and the contribution of relationships among variables.

**Table 5.** R-Square and Q-Square Results

	R-Square	Q-Square
Digital Marketing Effectiveness (Y)	0.486	0.026
Digital Marketing Literacy (Z1)	0.116	0.085
Perceived Quality (Z2)	0.130	0.094

Table 5 results of the analysis showed that Digital Marketing Effectiveness ( $R^2 = 0.486$ ) was in the moderate category, which means that about 48.6% of the variation of these variables could be explained by constructs in the model, while the rest was influenced by other factors outside the model. Meanwhile, Digital Marketing Literacy ( $R^2 = 0.116$ ) and Perceived Quality ( $R^2 = 0.130$ ) showed relatively low levels of explanation, and were able to explain a small part of the variance of the two constructs. Predictive ability analysed in this research explain about the entire construct has a positive  $Q^2$  value (0.026–0.094) which indicates that the model has predictive relevance, although its predictive power is still relatively weak.

**Table 6.** F-Square Results

	GI (X)	DML (Z1)	PQ (Z2)	DME (Y)
Geomarketing Insight (X)		0.132	0.090	0.221
Digital Marketing Literacy (Z1)			0.016	0.023
Perceived Quality (Z2)				0.295
Digital Marketing Effectiveness (Y)				

The  $f^2$  results in the table 6 show that Geomarketing Insight exerts a moderate influence on Digital Marketing Effectiveness (0.221), while its impact on Digital Marketing Literacy (0.132) and Perceived Quality (0.090) is relatively small. Perceived Quality demonstrates a relatively strong effect on Digital Marketing Effectiveness (0.295), whereas the influence of Digital Marketing Literacy on other variables is minimal. These findings suggest that Geomarketing Insight and Perceived Quality function as key determinants of Digital Marketing Effectiveness within the proposed research model.

**Bootstrapping Analysis**

Hypothesis evaluation in this research employed the bootstrapping technique to determine whether the relationships among constructs in the structural model were statistically significant. Next steps is a hypothesis is considered supported when the T-statistic value is greater than 1.96 and the p-value is below the significance level of 0.05.

**Table 7.** Bootstrapping Test Results

<b>Variabel</b>	<b>Original sample (O)</b>	<b>Sample mean (M)</b>	<b>Standard deviation</b>	<b>T statistics</b>	<b>P values</b>	<b>Ket</b>
<b>Direct Effect</b>						
Geomarketing Insight -> Digital Marketing Literacy	0.341	0.359	0.076	4.461	0	H1 Accepted
Geomarketing Insight -> Perceived Quality	0.125	0.129	0.094	1.323	0.186	H2 Rejected
Digital Marketing Literacy -> Digital Marketing Effectiveness	0.374	0.38	0.088	4.25	0	H3 Accepted
Perceived Quality -> Digital Marketing Effectiveness	0.417	0.422	0.094	4.428	0	H4 Accepted
<b>Specific Indirect Effect</b>						
Geomarketing Insight -> Digital Marketing Literacy -> Digital Marketing Effectiveness	0.128	0.135	0.041	3.117	0.002	H5 Accepted
Geomarketing Insight -> Perceived Quality -> Digital Marketing Effectiveness	0.052	0.053	0.041	1.265	0.206	H6 Rejected
Geomarketing Insight -> Digital Marketing Literacy -> Perceived Quality -> Digital Marketing Effectiveness	0.042	0.049	0.02	2.094	0.036	H7 Accepted

The statistical results in table 7 indicate that Geomarketing Insight has a positive and significant influence on Digital Marketing Literacy ( $\beta = 0.341$ ;  $T = 4.461$ ;  $p < 0.001$ ). Research shows that the use of location-based insights can improve the ability of business actors to

understand and manage digital marketing strategies. In contrast, Geomarketing Insight had no significant effect on Perceived Quality ( $\beta = 0.125$ ;  $T = 1.323$ ;  $p = 0.186$ ), so that the use of location-based market analysis does not directly affect the perception of product quality. The analysis also demonstrates that Digital Marketing Literacy significantly improves Digital Marketing Effectiveness ( $\beta = 0.374$ ;  $T = 4.250$ ;  $p < 0.001$ ). This shows that increasing digital marketing literacy drives the effectiveness of digital marketing strategies. Likewise, Perceived Quality shows a significant positive relationship with Digital Marketing Effectiveness ( $\beta = 0.417$ ;  $T = 4.428$ ;  $p < 0.001$ ), indicating that favorable consumer perceptions regarding product quality can enhance the effectiveness of digital marketing activities.

Mediation pathway explain about Digital Marketing Literacy was proven to mediate the influence of Geomarketing Insight on Digital Marketing Effectiveness ( $\beta = 0.128$ ;  $T = 3.117$ ;  $p = 0.002$ ), while Perceived Quality did not act as a mediator in the relationship ( $\beta = 0.052$ ;  $T = 1.265$ ;  $p = 0.206$ ). However, the chain mediation pathway involving Geomarketing Insight, Digital Marketing Literacy, Perceived Quality, and Digital Marketing Effectiveness showed significant results ( $\beta = 0.042$ ;  $T = 2.094$ ;  $p = 0.036$ ). These findings show that Digital Marketing Literacy is the most consistent mediator in bridging the influence of Geomarketing Insight on Digital Marketing Effectiveness, while Perceived Quality plays a more role as a factor that directly strengthens the effectiveness of digital marketing. A Sobel test was performed to validate the significance of the indirect effect through the mediating variable.

**Tabel 8.** Sobel Test Results

Mediation Pathway	a	b	Sobel Test	Std. Error	p-value
Geomarketing Insight → Digital Marketing Literacy → Digital Marketing Effectiveness	0,181	0,711	3,770	0,034	0,00016
Geomarketing Insight → Perceived Quality → Digital Marketing Effectiveness	0,125	0,538	2,581	0,026	0,0099

The results of the Sobel test in table 8 show that there is a significant indirect influence on the two mediation pathways tested in this study, namely the Geomarketing Insight pathway through Digital Marketing Literacy to Digital Marketing Effectiveness and the Geomarketing Insight pathway through Perceived Quality to Digital Marketing Effectiveness. In the first track, a Sobel value of 3.770 with a p-value of 0.00016 ( $< 0.05$ ) indicates that Digital Marketing Literacy significantly mediates the relationship between Geomarketing Insight and Digital Marketing Effectiveness. This is shown by the correlation coefficient from Geomarketing Insight to Digital Marketing Literacy of 0.181 which indicates a positive influence even though it is relatively small, while the relationship from Digital Marketing Literacy to Digital Marketing Effectiveness of 0.711 shows a strong and dominant influence. In the second track, namely Geomarketing Insight towards Perceived Quality towards Digital Marketing Effectiveness, a Sobel value of 2.581 with a p-value of 0.0099 ( $< 0.05$ ), which also shows a significant mediation through Perceived Quality. The correlation coefficient from Geomarketing Insight to Perceived Quality of 0.125 shows a relatively weak influence, while the relationship from Perceived Quality to Digital Marketing Effectiveness of 0.538 shows a fairly strong and positive influence. These results confirm that Digital Marketing Literacy is a more dominant mediator than Perceived Quality, so that the relationship between variables in this model shows a partial mediation pattern that strengthens the influence of Geomarketing Insight on Digital Marketing Effectiveness.

**Effectiveness Test**

An efficacy test was carried out to assess the degree to which the utilization of the HELO UMKM website influences the enhancement of comprehension among the respondents, who in this study are university students. The Wilcoxon Signed Rank Test was used to compare the scores on the pretest and posttest, and classical mastery analysis was used to see how well everyone learned overall.

**Table 9.** Wilcoxon Signed Rank Test Results for the HELO UMKM Website

<b>Test Statistics<sup>a</sup></b>	
	POSTTEST - PRETEST
Z	-.371 <sup>b</sup>
Asymp. Sig. (2-tailed)	.711

a. Wilcoxon Signed Ranks Test

**b. Based on negative ranks.**

In Table 9, the results of the Wilcoxon test show a Z-value of -0.371 with Asymp. Sig. (2-tailed) of 0.711 or greater than 0.05. These results show that there is no statistically significant difference between pretest and posttest scores. Thus, the increase in learning outcomes after the use of the HELO UMKM Website has not been statistically significant. This condition indicates that the use of the website has not had a strong influence on the change in respondents' comprehension scores in the test period. The insignificance of the Wilcoxon test results may also be influenced by the ceiling effect, which is a condition when some respondents already have a relatively high initial level of understanding at the time of the pretest, so that the increase in scores after the use of the HELO UMKM Website is not too large statistically. However, these results do not directly indicate that websites are not useful, but rather indicate that the increase in understanding has not been large enough to produce a significant statistical difference.

**Table 10.** Classical Completeness Calculation Results for the HELO UMKM Website

TES	T	TT	KT	KK	Desc	All Desc
Pretest	114	36	0.282842712 <1,64	76%	Effective	83% (Very Effective)
Posttest	135	15	4.242640687 >1,64	90%	Very Effective	

Table 10 above shows that the classical completeness analysis shows an increase in the percentage of material mastery from 76% in the pretest to 90% in the posttest, with an overall success rate of 83%. These results show that descriptively there was an increase in respondents' learning outcomes after utilizing the HELO UMKM Website. However, because the results of the Wilcoxon test do not show statistical significance, the effectiveness of the HELO UMKM Website in this study is more accurately interpreted as an indication of an increase in descriptive understanding, rather than as evidence of statistically strong effectiveness. The results of this study are not enough to conclude the strong effectiveness of the HELO UMKM Website, but it shows the potential for the use of websites in supporting the improvement of digital marketing understanding.

## Discussion

### Development of the HELO UMKM Website

The creation of the HELO UMKM website as shown in the research titled illustrates that digital technology is not only limited to advertising. This website creates a website with the help of a digital geomarketing environment. The ecosystem brings together digital marketing knowledge, location analytics, and marketing support components in the form of AI-based operational support templates in a single website. This system is a decision support system

because it combines Help, Empower, Geospatial Link, and Operational MarkAI components. The researcher managed to make all the components home made except for the empower book taken from the Geoedupreneurship book. This method has the potential to expand the reach of digital marketing for MSMEs, which typically rely on social media or online marketplaces, often without in-depth regional studies. Geography is not only a physical feature in geomarketing, but it is also a strategic source of information to study economic activities and customer behavior (Meifela et al., 2023).

The use of digital technology with spatial data look like Inrisk or GIS Marketing in this system also supports the idea of using data to direct marketing plans for small and medium-sized businesses. By looking at spatial data, they can better understand where the market is located and where economic activity is taking place. These results are in line with research that shows that the integration of digital technology in business and education can improve critical thinking and decision-making skills (Rahayu et al., 2021). HELO UMKM is not just a website for digital marketing it is also a place where small and medium-sized businesses (SMEs) can learn to think about marketing from a data perspective. The MarkAI operational prompt on this website is also not used much because this website can automatically provide descriptions in the form of options that they can choose with peace of mind and fast loading times. This website is certainly also made a guidebook to help website users to access it more easily. Some of the features on this website are very complete so that users are not difficult to carry out marketing actions because it consists of creating drag and drop templates in Help, marketing planner templates so that in addition to him can learn but also practice directly.

### **Reflective Construct**

These MSME entrepreneur students are expected to be good at understanding and utilizing spatial data to support their online marketing. Users of the HELO UMKM website can see an interactive map showing the location of suppliers as well as areas with high economic activity. This mapping tool helps business owners get a more accurate picture of market dynamics, rather than relying solely on instinct. Geographic visualization helps users find geographic patterns in business processes, such as supplier locations, where products can be distributed, and active customer locations. These insights help small business owners do better market research, so they can consider location when crafting a marketing plan.

Spatial data can also help with marketing decision making by providing marketers with a clearer picture of where customers are and how many they are (Firmansyah, 2022; Widodo & Permatasari, 2024). Geomarketing Insight is positioned as a reflective construct, geomarketing insights are reflected in the behavior of people who use spatial information. The research examines supplier locations, identifies potential market areas, and incorporates geographical aspects into the marketing plan. Spatial analysis does not always play a role in business relocation decisions. When small and medium-sized businesses (SMEs) decide to relocate, they are less influenced by their location or the way they sell goods. Geomarketing is more often used to study the market, not to determine the location of the business. The shortcomings that must be fixed are in the accuracy of spatial mapping that is a concern, especially because of its incomplete integration with external geographic information systems such as pop-ups that must be improved, coordinates that must be adjusted Geomarketing Insight features on the HELO UMKM website do not only provide data.

### **Formative Constructs**

Digital Marketing Literacy, Quality Perception, and Digital Marketing Effectiveness are considered composite constructs. These constructs are evaluated using a variety of indicators. These indicators provide a comprehensive understanding of how users perceive the system, the effectiveness of marketing efforts, and the overall impact of the marketing strategy. Their marketing strategies often remain reactive and unstructured even though the use of digital marketing strategies has become widespread. This real world condition about entrepreneur statement is what shows that simply having access to digital tools does not guarantee effective marketing. The HELO UMKM website addresses this gap by offering a combination of educational resources, campaign planning support, and automated content generation. The learning materials provided by this system provide a comprehensive overview of digital marketing. The material includes guidance on how to effectively utilize various channels, build a brand, and plan promotional activities. This learning module provides actionable advice to MSME managers, helping them improve their marketing skills. Perceived Quality essentially reflects how users evaluate the performance of the system.

Ease of use, ease of navigation, reliability, and data security are important factors to consider. Although users generally find the website useful for marketing tasks, there are still some technical issues. Digital marketing effectiveness refers to how well small and medium-sized business owners (SMEs) can plan, execute, and evaluate their digital marketing efforts strategically and in line with their intended goals. HELO UMKM simplify the user experience by combining essential tools into one website without having to go through the hassle of entering prompts. This structured approach can lead to better final results.

## **Hypothesis Discussion**

### **Geomarketing Insights Affect Digital Marketing Literacy**

The calculations that have been calculated by this researcher support the hypothesis that geomarketing insights affect digital marketing literacy. This real statement shows that interaction with spatial data can increase users' understanding of the HELO UMKM website to digital marketing concepts. The positively effect is that users gain a clearer understanding of the reciprocal relationship between location, target market, and digital marketing strategy. Geomarketing insights serve as a cognitive stimulus, thereby enhancing the digital marketing learning experience. As consumers begin to associate location data with strategy methodologies in marketing organic or an organic through online by digital or offline by real condition in the crowded place, their tendency to engage in analytical exploration related to segmentation, targeting, and positioning is also increasing. The data of spatial is recognized as the foundation of market analysis that can facilitate the development of a more targeted marketing strategy. This statement is in line with existing research showing that the integration of digital technology into learning systems can improve information understanding and strategic decision-making (Cruz & Rosário, 2025).

### **Geomarketing Insights Affect Perceived Quality.**

This researcher found a realistic portrayal that contradicts the initial assumption which shows that Geomarketing Insights do not significantly affect Perceived Quality. The results of the calculation show that the addition of spatial analysis tools to the system does not directly affect the way users perceive the overall quality of the website. User experience is the most important factor in the perception of quality on digital websites. The research with this title identified about system stability, clear interface, easy navigation, and perceived security as important factors

(Yolanda et al., 2021). Geomarketing features are useful, but there hasn't been enough research on how they affect users' assessment of the overall quality of the system. This statement may be due to the fact that some users are still adapting to spatial data. People's first impression of a new technology often depends on how easy it is to use. According to model TAM, people usually form their opinions about the quality of a system over time, as they become more familiar with the technology (Widaningsih & Mustikasari, 2022).

### **Digital Marketing Literacy Affects Digital Marketing Effectiveness**

The current affairs title explains that digital marketing literacy has a valid influence on the effectiveness of digital marketing. This research demonstrates that the efficiency of digital marketing is not only driven by the existence of digital websites, but also by users' capacity to understand and handle marketing campaigns methodically. Digital Marketing Literacy lets people put together several digital marketing tasks, such planning campaigns, coming up with content strategies, analyzing performance, and dividing up the market, into one systematic marketing strategy. Deep understanding about principles digital marketing often allow users to design more targeted and can be operate in accordance with designed spesification marketing. These findings are consistent with research indicating that digital literacy plays a crucial role in improving the marketing performance of SMEs through more systematic management of digital strategies (Jung & Shegai, 2023).

### **Perceived Quality Affects Digital Marketing Effectiveness.**

This study's findings indicate a positive relationship between Perceived Quality and Digital Marketing Effectiveness. Users' assessments of the HELO UMKM website's quality are predicated on its system reliability, ease of use, feature clarity, and perceived security. Consequently, users are more inclined to trust and utilize a website for their digital marketing endeavors when they perceive it as high-quality (Sutantio et al., 2025). These findings are consistent with earlier studies suggesting that how well a system works can strengthen the connection between adopting technology and improving business (Eras Tarta & Lamhot Pasaribu, 2024; Juliana et al., 2022). The Technology Acceptance Model (TAM) suggests about user friendly and intuitive websites can reduce about user resistance, potentially leading to wider adoption of digital marketing tools. Furthermore, for the participants in UM Super Batch 6, the website's quality contributes to a reduction in cognitive load, enabling SME practitioners to concentrate more effectively on the formulation of their marketing strategies (Sudi et al., 2024). Perceived Quality is not just about the ease of use of the system, but it is also a key factor driving the adoption of technology in marketing. This continuous integration ultimately improves the effectiveness of digital marketing.

### **Geomarketing Insight Affects Digital Marketing Effectiveness Through Digital Marketing Literacy**

This research shows that geomarketing insights do not directly increase the effectiveness of digital marketing is instead, the impact is mediated by Digital Marketing Literacy. This shows that the geographical elements contained on the HELO UMKM website do not automatically result in better digital marketing results. The effectiveness of digital marketing on these outcomes suggests it can depend on the ability of users to utilize data effectively, not just its accessibility. The latest research is in line with existing research that identifies digital literacy as an important

bridge between technology adoption and performance improvement in Small and Medium Enterprises (SMEs).

As for the practical actions of this insight, such as in content organization, segmentation of promotional areas, and campaign evaluation, it is very important to improve performance, which requires the development of Digital Marketing Literacy. Innovation the are available is what contributes to the Technology Acceptance Model (TAM) by showing that the effectiveness of technology does not only depend on ease of use and perceived usability, but also on the ability of users to master new digital skills. The effectiveness of digital marketing can be conceptualized as a progressive process as well as spatial insights cultivate awareness, which in turn develops literacy, and ultimately leads to improved digital marketing performance.

### **Geomarketing Insight Affects Digital Marketing Effectiveness Through Perceived Quality**

Latest findings in this title study show that Perceived Quality does not significantly play an intermediate variable in the relationship between Geomarketing Insights and Digital Marketing Effectiveness in the UM SUPER Batch 6 group. Users give a good assessment of the quality of the HELO UMKM Website. Good judgment doesn't quite influence directly affect how effective an entrepreneur's digital marketing is. These insights reveal a mismatch between user experience and strategic implementation. Users' perceptions of quality reflect the way they assess the usability and reliability of a system.

Digital marketing in the other view is only effective if it uses techniques that are based on the knowledge it has. People usually appreciate a website because it is easy to use and looks attractive. An organization's genuine progress in the act of marketing themselves only occurs when users can relate their geographic knowledge to practical marketing decisions (Mashiah, 2025). End result the amount received that contradicts some studies that have shown that Perceived Quality can act as a mediator in various marketing contexts, such as the relationship between consumer ethnocentrism (Dhewi & Oktaviani, 2023). The title of this study provides another insight into Perceived Quality serves more prominently as a factor that drives the sustainability of website use than as a key link between insights and marketing performance.

### **Geomarketing Insight Affects Digital Marketing Effectiveness Through Digital Marketing Literacy And Perceived Quality In A Chain**

A chain mediation analysis shows that participants in the 2025 UM Super Batch 6 program will gradually improve their digital marketing skills. Initially, Geomarketing Insights improved Digital Marketing Literacy, which then influenced Perceived Quality. Together, these two factors contribute to the effectiveness of digital marketing strategies. As a result, these findings expand the application of the Technology Acceptance Model (TAM), a framework that has traditionally focused on the impact of Perceived Usability and Perceived Ease of Use on user behavior.

These findings are in line with previous studies that showed that the influence of digital interactions is often manifested through intermediary variables before influencing marketing outcomes (Dhewi et al., 2021), and in hierarchical mediation frameworks that incorporate user skills and experience (Baumert & de Obesso, 2021). For UM Super Batch 6 participants, the HELO UMKM website serves as an educational resource, facilitates spatial understanding, improves literacy, and offers a better user experience. Therefore, in this specific context, perceived quality comes from the learning process, not solely determined by initial evaluation. This study highlights that the effectiveness of technology in improving Digital Marketing Effectiveness depends on

multidimensional transformations that involve better understanding, skills developed, and sustainable strategic implementation (Harto et al., 2025).

### **Effectiveness Analysis**

The website's performance analysis shows that the HELO UMKM website helps users gain a deeper understanding of digital marketing. The learning results show that users gain a broader knowledge of marketing techniques and decision-making skills after using the website. Although statistical testing did not show a significant difference between pretest and posttest scores, the overall learning outcomes showed that the website assisted users in learning marketing and improving their analytical skills.

### **Evaluation Stage**

An assessment in 2025 of the effectiveness, usability, and influence of the HELO UMKM website will be carried out, with reference to the practical experience of UM Super Batch 6 users. The results of the assessment show a positive user perception of the website. Output the results obtained above are in line with the Technology Adoption Model (TAM) where the results show a shift towards a more consistent attitude regarding technology adoption look like stated by (Rahayu et al., 2024) emphasizing that learning support and initial experience of using the system play an important role in forming satisfaction as a mediation mechanism for improving performance.

As for the limitations that will be felt by users, such as the performance of the system depends on the quality of the user's internet connection and this system has not been properly integrated with other mapping services such as the GMAPS key API so that it cannot immediately show the direction clearly, access to spatial data is not guaranteed because some test users find the coordinates on the map inaccurate when visited. Not only is left alone, but this can be an effort in the future to prioritize improving system interoperability, improving spatial data accuracy, and developing more interesting educational resources by adding visual effects that relate to real conditions so that they are not boring. HELO UMKM for them can be a promising digital ecosystem centered on geomarketing.

### **CONCLUSIONS**

The research that has been conducted by the researcher in accordance with this title explains that the HELO UMKM website is based on Geomarketing Insights. This title was developed using the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model for steps to produce research result capable of meeting the needs of micro, small, and medium enterprises (MSMEs) that are transitioning to digital marketing. The goal is to help people learn and make fact based marketing decisions. HELO UMKM is an excellent way for small and medium-sized businesses (SMEs) to learn more about digital marketing and improve their skills. Steps look like Seminars, training sessions, and mentoring programs can help in this regard.

The HELO UMKM website shows that Geomarketing Insights has a positive impact on Digital Marketing Literacy. The disadvantage is that it seems that digital marketing literacy does not have much impact on the perception of quality. A positively understanding of digital marketing and how to assess quality is essential for the success of digital marketing efforts. Mediation research also shows that digital marketing literacy is a key factor linking Geomarketing Insights and digital marketing performance. This perceived quality explains that it does not directly connect the two. This perceived quality but works together with Digital Marketing Literacy to

form a sequential mediation mechanism. HELO UMKM is a good place to learn and a tool for digital geomarketing marketing. This website can help small and medium-sized businesses improve their digital marketing performance, especially for the UM Super Batch 6 entrepreneurial group by 2025.

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