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Opportunities and Challenges of MSME Marketing in the Digital Era

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Abstract: Micro, Small, and Medium Enterprises (MSMEs) frequently encounter challenges in adopting digital marketing strategies due to limited internal resources and external constraints. This study aims to analyze the opportunities and challenges of MSME marketing in the digital era by examining the influence of internal and external factors on digital transformation. Using a quantitative approach, data were collected from 180 MSME entrepreneurs in Surakarta through structured questionnaires and analyzed using statistical methods. The findings indicate that both internal factors, such as human resources, digital skills, and organizational readiness, and external factors, including market dynamics and technological infrastructure, significantly affect the level of digitalization. However, internal factors emerge as the most dominant predictors and serve as the fundamental driver of digital marketing transformation. The study also reveals that MSMEs implementing digital marketing experience higher-than-average online sales performance. These results suggest that strengthening internal resource capacity is essential for enhancing digital adoption. Therefore, MSME development policies should prioritize capacity-building programs to ensure sustainable competitiveness in the digital economy.

Keywords: Competitiveness; Digital Marketing; Digital Transformation; Internal Resources; Micro, Small, and Medium Enterprises.

1. Introduction

According to data from the Surakarta Provincial Industry and Trade Office in 2020, small and medium industries (SMEs) in Surakarta experienced very poor performance until 2019, with low, even negative, average growth in investment value, output, and labor. This condition worsened in early 2020 when the COVID-19 pandemic hit, which caused several SMEs in Surakarta to go out of business. However, business activities in Surakarta are mostly dominated by micro and small enterprises (MSEs), while the second largest industry is the SME sector. In 2020, the Surakarta Provincial Cooperatives and SMEs Office reported many MSEs affected by COVID-19, a finding that can be juxtaposed with the results of the KIC survey in Central Java in the same period.

The COVID-19 pandemic dealt a devastating blow to SMEs in Surakarta, prompting the government and experts to offer various incentive programs to help their recovery. Declining sales is the most crucial issue for SMEs in the midst of a pandemic, followed by capital and distribution constraints. As a solution, digitalization is seen as the most suitable solution, especially for marketing strategies. However, digital adoption in Surakarta is still low. As of 2021, of the 340,000 MSMEs, not all have switched to digital platforms. Therefore, officials of the Surakarta Cooperatives and MSMEs Office concluded that in this modern era, SMEs will not be able to survive with conventional marketing alone; Digitalization is a must.

The digitalization of the marketing of small and medium industry (IKM) products is considered necessary due to changes in people's lifestyles (Suwatno, 2019). Digital marketing has a wider scope than just online buying and selling activities on a website; It involves implementing different strategies and processes when creating offers as well as associating brands and marketing with the power of the internet. Along with the increasing

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implementation of digitalization by SMEs to explore opportunities and adopt digital business models, the President of the Republic of Indonesia emphasized that industrial digitalization is very promising. This is because digitalization is able to increase activities, efficiency, and added value, as well as provide growth opportunities, even exponentially. However, changes in digital marketing are also understood to present a digital paradox (Kominfo, 2021).

Marketing digitalization allows MSMEs to adapt, survive, and grow, along with increasing corporatization, capacity, and funding. Significant benefits of digitalization for MSMEs include reduced transaction costs, improved internal and network communication, integration facilitation, expanded service coverage, ease of access to resources and innovation, and the ability to generate and analyze operational data (OECD, 2020). In addition, the use of digital platforms encourages MSMEs to become more resilient by increasing productivity, innovation, and facilitating wider market and financial institution access (BI, 2020).

The success of digital adaptation is also influenced by other factors. While the intensity of competition can drive digital adoption in the early stages, the main determining factor is the readiness of the organization itself (Kraus et al., 2021; Ali et al., 2022). In addition, Ritz et al. (2018) added that a self-paced digital marketing approach (Do-It-Yourself or DIY) can help understand the digital marketing behaviors implemented by small businesses.

2. Literature Review

Digital marketing transformation requires wider adoption of technology and significant cultural changes (Suwatno, 2019). This process is not just about switching to online buying and selling activities, but rather involves a radical shift from traditional business models to user-centric digital and service models. As these changes focus more on the human factor than technology, organizations must transform to become more customer-oriented, supported by leadership that dares to challenge existing corporate cultures, and leverage technology to empower and facilitate employees (Chapo et al., 2018; Febriyantoro & Arisandi, 2018). The goal is to optimize the customer experience to create added value, increase revenue, innovate faster, collaborate, and deliver value more effectively. However, as Rahmawati et al. (2025) reveal, these changes are a continuous evolution in the views of markets and society, making determining the ultimate goal difficult. Nonetheless, practitioners must establish what they want to achieve in this transformation journey. Thus, the main goal of digital marketing transformation is to make organizations more efficient, convenient, adaptable to changing market conditions, and more in line with market needs. However, this change can also present a digital paradox (Kominfo, 2021).

The main emotion of SMEs in digital marketing transformation is external impulses (Sutanto et al., 2024), demonstrating their reactive nature in following the policies and business steps of others, leading to a loss of uniqueness and competitive advantage. The lack of a deep understanding of communication literacy and the full potential of digital tools (Radicic & Petkovic, 2023) causes SMEs to feel that they have not fully felt the benefits of digitization, sometimes even producing insignificant operational and marketing impacts (Siebel, 2019). These weaknesses are exacerbated by limited budgets, IT personnel, infrastructure, and ignorance of reliable online payment systems (Hojnik & Huđek, 2023). This study, which focuses on Surakarta SMEs although previous research tends to ignore this sector because it is considered less adaptive (Bouwman et al., 2018; Basak et al., 2022), aims to provide empirical evidence regarding the potential of SMEs in implementing the digital transformation process. This study emphasizes the capacity of internal resources as an important factor that is often a barrier in the transformation of SME marketing into a digital business process.

3. Method

This study was quantitative (Creswell & Creswell, 2018) using multivariate analysis with the SmartPLS regression model. The research population includes 16,690 units of SMEs in Solo Raya by 2024. The sample size was determined based on the number of research indicators (37 indicators) multiplied by five, resulting in 180 respondents, which was also consistent with the sample size calculator's calculation. The sampling technique used cluster random sampling with a proportional distribution based on geographical area, and the selection of respondents in each cluster was carried out randomly using the help of a computer application. Data were collected through literature and field studies, with descriptive analysis using SPSS and inferential analysis (multiple linear regression) using SmartPLS to test hypotheses and achieve study objectives (Aedy & Mahmudin, 2017).

4. Results and Discussion

The results of the analysis using the Partial Least Squares (Smart-PLS) method showed the relationship between latent variables. Before testing the structural relationship (inner model), an evaluation of the measurement model (external model) is carried out to ensure the validity of the indicators on each latent variable. This step involves removing indicators with a loading coefficient (λ) below 0.700 to produce an optimal model.

The measurement model was evaluated by examining convergent validity, internal consistency (via Cronbach alpha and consistency reliability), and discriminant validity. This process ensures the reliability and validity of the indicators used to form latent constructs or variables (Chaffey & Chadwick, 2019; Dsouza & Panakaje, 2023). After the measurement model is assessed, hypothesis testing for the structural model can be carried out (Aedy & Mahmudin, 2017).

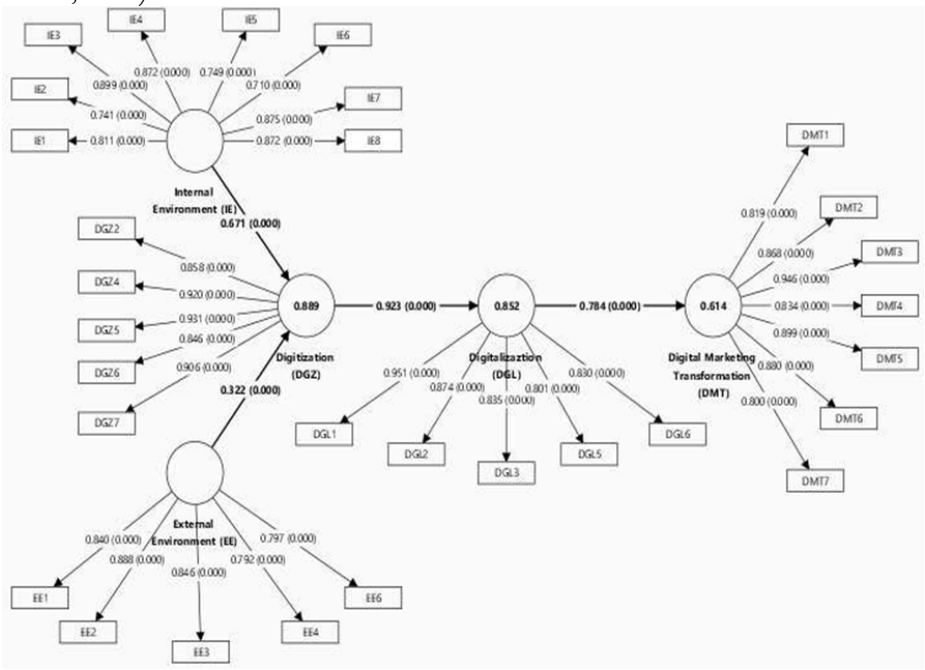

Figure 1. Outer and Inner Model Analysis

The results of the convergent validity test showed that all the factor loading values for the indicators on each latent variable were qualified (>0.700), which indicated that all indicators were valid and reliable in forming the constructs of the variables. After the reduction process through algorithmic calculations, the variables of Digital Marketing Transformation (DMT) are represented by seven indicators, Digitization (DGL) by five indicators, Digitization (DGZ) by five indicators, Internal Environment (IE) by eight indicators, and External Environment (EE) by five indicators.

Variables	Indicator	Loading Factor	Variables	Indicator	Loading Factor
Digital Marketing Transformation (DMT)	DMT1	0.819	Internal Environment (IE)	IE1	0.811
	DMT2	0.868		IE2	0.741
	DMT3	0.946		IE3	0.899
	DMT4	0.834		IE4	0.872
	DMT5	0,899		IE5	0.749
	DMT6	0,880		IE6	0.710
	DMT7	0,800		IE7	0.875
Digitalisation (DGL)	DGL1	0.951		IE8	0.872
	DGL2	0.874	External Environment (EE)	EE1	0.840
	DGL3	0.835		EE2	0.888
	DGL5	0.801		EE3	0.846
	DGL6	0.830			0.792
Digitisation (DGZ)	DGZ2	0.858		EE6	0.797
	DGZ4	0.920			
	DGZ5	0.931			
	DGZ6	0.846			
	DGZ7	0.906			

Figure 2. Result Five Indicators

Component reliability testing using Composite Reliability (CR) showed that all latent variable structures had a CR value that exceeded 0.700, even exceeding Cronbach's Alpha (CA) value (Aedy & Mahmudin, 2017). These results confirm that each latent variable is able to explain more than 50% of the variance of its indicators, since the absolute loading value is

also above 0.700. Thus, the combined reliability of all the indicator blocks that measure the structure has proven to be stable, consistent, and satisfactory.

Table 1. Internal Consistency Reliability

	Cronbach's Alpha	***Composite Reliability***
Digitalisation (DGL)	0.911	0.934
Digitisation (DGZ)	0.936	0.951
External Environment (EE)	0.890	0.919
Internal Environment (IE)	0.929	0.942
Digital Marketing Transformation (DMT)	0.943	0.954

Source: Analysis of research results

The discriminant validity test through cross-loading testing (Table 1) showed that the correlation value of the indicator to the latent variable itself was higher than the correlation value of other latent variables. These results indicate that the data have good discriminant validity and that each latent variable construct is conceptually different.

Tabel 2. The results of the Average Variance Extracted (AVE)

	Digitalisation nal	**Digitisation Internal**	**Exter-Environ-ment Environment**	**Digital Market-ing Transformation**
IE1	0.719	0.783	0.753	**0.811**	0.805
IE2	0.592	0.666	0.662	**0.741**	0.641
IE 3	0.812	0.870	0.745	**0.899**	0.752
IE 4	0.751	0.743	0.514	**0.872**	0.590
IE 5	0.616	0.705	0.385	**0.749**	0.451
IE 6	0.584	0.572	0.529	**0.710**	0.402
IE 7	0.872	0.870	0.871	**0.875**	0.821
IE 8	0.756	0.760	0.545	**0.872**	0.512
EE1	0.521	0.645	**0.840**	0.578	0.727
EE2	0.654	0.692	**0.888**	0.711	0.825
EE3	0.729	0.767	**0.846**	0.627	0.797
EE4	0.815	0.792	**0.792**	0.678	0.542
EE6	0.697	0.558	**0.797**	0.619	0.677
DGZ2	0.738	**0.858**	0.722	0.773	0.750
DGZ4	0.849	**0.920**	0.833	0.890	0.835
DGZ5	0.917	**0.931**	0.832	0.887	0.748
DGZ6	0.785	**0.846**	0.596	0.756	0.607
DGZ7	0.820	**0.906**	0.754	0.790	0.664
DGL1	**0.951**	0.875	0.815	0.820	0.831
DGL2	**0.874**	0.793	0.690	0.693	0.637
DGL3	**0.835**	0.825	0.661	0.825	0.649
DGL5	**0.801**	0.751	0.725	0.754	0.594
DGL6	**0.830**	0.714	0.659	0.683	0.633
DMT1	0.536	0.596	0.669	0.518	**0.819**
DMT2	0.664	0.651	0.771	0.625	**0.868**

DMT3	0.718	0.785	0.754	0.755	**0.946**
DMT4	0.739	0.767	0.817	0.675	**0.834**
DMT5	0.751	0.729	0.749	0.790	**0.899**
DMT6	0.632	0.690	0.665	0.681	**0.880**
DMT7	0.660	0.653	0.726	0.591	**0.800**

Source: Analysis of research results

The results of the Average Variance Extracted (AVE) test in Table 2 show that the AVE value produced by each construct in the research model is greater than 0.500 (Aedy & Mahmudin, 2017). These results, along with previous discriminant validity tests, indicate that the model has no discriminatory problems. All latent variables are declared to pass the validity test, ensuring that each latent variable is conceptually different from each other.

Table 3. Average Variance Extracted (AVE)

	Average Variance Extracted (AVE)
Digitalisation (DGL)	0.739
Digitisation (DGZ)	0.797
External Environment (EE)	0.695
Internal Environment (IE)	0.671
Digital Marketing Transformation (DMT)	0.748

Source: Analysis of research results

The evaluation of the structural model (inner model) was carried out using four indicators: partial factor, t-test results, R-square, and Q-square. The results from Table 3 show a significant relationship between the study variables. It was found that digitalization had a significant influence of 78.4% on digital transformation (path coefficient = 0.784; $p < 0.05$). In addition, digitization showed a very strong and significant influence of 92.3% on digitalization (path coefficient = 0.923; $p < 0.05$). While the external environment had a significant effect of 32.2% on digitization (path coefficient = 0.322; $p < 0.05$), the internal environment showed a more dominant and significant influence, which was 67.1% (path coefficient = 0.671; $p < 0.05$). All of these relationships are stated to be significant because the t-statistical value exceeds 1.960 and the p-value is below 0.050.

Table 4. Path Coefficients

Digitalisation -> Digital Marketing Transformation	0.784	0.785	0.031	25.386	0.000	Supported
Digitization -> Digitalization	0.923	0.923	0.009	104.960	0.000	Supported
External environment -> Digitization	0.322	0.317	0.041	7.899	0.000	Supported
Internal Environment -> Digitisation	0.671	0.675	0.036	18.711	0.000	Supported

Source: Analysis of research results

All of the path coefficients in this study were statistically significant, as the t-statistic value for each relationship exceeded the critical value of 1.960 and the p-value was less than 0.050. These findings consistently show that all of the relationship pathways tested have a noticeable influence. Meanwhile, the value of the determination coefficient (R-squared) indicates the ability of independent variables to explain the variability of dependent variables. The variables of digitalization, digitization, and the internal and external environment collectively explain 61.2% of the variability in digital marketing transformation ($R^2 = 0.612$).

Then, 85.2% of the variability of digitization was explained by digitization, internal environment, and external environment (R^2 = 0.852). Finally, the internal and external environment variables together explain 88.9% digitization variability (R^2 = 0.889).

Table 5. Quality Criteria: R_Square (R2)

Variable	R-square	R-square adjusted
Digitalisation (DGL)	0.852	0.851
Digitisation (DGZ)	0.889	0.887
Digital Marketing Transformation (DMT)	0.614	0.612

Source: Analysis of research results

Effect size (f^2) is used to evaluate the relative influence of exogenous variables on endogenous variables (Hair et al., 2018). The results in Table 7 consistently show that the relative influence of all relationships tested in the model is large. Specifically, the influence of digitalization on digital marketing transformation, the influence of digitization on digitalization, and the influence of the internal and external environment on digitization, are all categorized as having a big impact.

Table 6. f-square (f2)

Variable	Digitalisation (DGL)		Digitisation (DGZ)		Digital Marketing Transformation (DMT)	
Digitalisation (DGL)					1.592	large
Digitisation (DGZ)	5.768	large				
External Environment (EE)			0.373	large		
Internal Environment (IE)			1.616	large		

Source: Analysis of research results

The Q-squared (Q^2) value is used to assess the predictive relevance of the research model, where a value above zero indicates a good observation value. The result of the Q^2 calculation in this study was 0.964 (> 0), which indicates that the model has adequate and good predictive values. Hypothesis testing was carried out using inferential statistics with a significance level of 0.05 (t-table value of 1.960). All the alternative hypotheses (Ha) proposed proved significant. The first hypothesis (H1) that external factors have a significant effect on digitization is supported by statistical evidence (p-value 0.000; t-statistic 7,899 > 1,960), shows a positive interaction: the more external challenges that are overcome, the higher the ability of SMEs to digitize data. The effect size of this influence is relatively large. The second hypothesis (H2) was also proven to be statistically significant (p-value 0.000; t-statistically 18,711 > 1,960), confirming that internal factors have a significant effect on digitization; The interpretation is that the greater the capacity of internal resources, the greater the ability to digitize company data. The effect size of this influence is also categorized as large (0.1616). Finally, the third hypothesis (H3) which states that digitization has a significant effect on digitization is also proven to be true (p-value 0.000; t-statistic 104,960 > 1,960), showing a one-way positive effect: the more comprehensive the analog data is changed, the greater the ability of Surakarta SMEs to complete the digitization process.

With an effect size value (f^2) of 0.576, the influence of digitization on digitization is categorized as large. Furthermore, the fourth hypothesis test (H4) proves that digitalization has a significant influence on digital marketing transformation in SMEs in Surakarta, with a p-value of 0.000 (below 0.050) and a t-statistical value of 25,386 (above 1,960). This indicates a positive one-way relationship, where the more comprehensive SMEs use digital data in their business processes, the more relevant the business model they apply in digital marketing transformation. This influence is also relatively large, with an effect size value (f^2) of 0.159.

External factors significantly affect the digitization of SME marketing in Surakarta (Sutanto et al., 2024). This means that SMEs that are able to manage external opportunities and threats tend to be more successful in converting analog data to digital. The profile of respondents who are generally highly educated, have more than five years of experience as managers, and are relatively young and dynamic show good adaptability to digital technology

developments. The pressure of fierce competition, good digital infrastructure, the potential of low-cost online businesses, and online consumer shopping trends are strong reasons for entrepreneurs to take advantage of this opportunity. These findings support research by the OECD (2020) and BI (2020) which states that digital platforms help MSMEs become more productive, innovative, and resilient, although organizational readiness remains the most important factor (Kraus et al., 2021; Ali et al., 2022).

Internal factors also significantly affect the digitization of SME marketing in Surakarta, even with a greater influence than external factors. The higher the capacity of the internal resources of SMEs, the greater their ability to digitize the company's data. This potential is supported by the owner/manager's level of education and experience, commitment, ICT-based company culture, digitally skilled employees, and the appropriate company size. Rational identification of internal conditions is essential because these potentials determine strengths and weaknesses in adapting to external changes (Kotler et al., 2017; Sitepu et al., 2023). Digital marketing transformation, which is more human-focused than technology-driven, requires customer-centric and leadership-supported organizational change (Chapo et al., 2018; Febriyantoro & Arisandi, 2018; Rahmawati et al., 2025).

Where the ability to manage external opportunities and threats determines the success of analog to digital data conversion. Adaptive respondent profiles, plus competitive pressure, good infrastructure, online business potential, and online consumer trends, are strong reasons for taking advantage of this opportunity. These findings support research by the OECD (2020) and BI (2020) which states that digital platforms help MSMEs become more resilient, although organizational readiness remains crucial (Kraus et al., 2021; Ali et al., 2022). Meanwhile, internal factors also have an even greater impact on digitization; the higher the capacity of internal resources (education, experience, commitment, ICT culture), the greater the ability to digitize company data. Rational identification of internal conditions is essential for external adaptation (Kotler et al., 2017; Sitepu et al., 2023), as digital marketing transformation is more human-focused and customer-centric organizational change (Chapo et al., 2018; Febriyantoro & Arisandi, 2018; Rahmawati et al., 2025).

Digitalization has a significant impact on the digitization of SME marketing; the more comprehensive the analog data processed, the greater the ability to drive the digitization process, which is supported by online sales and promotional activities that increase transaction traffic and customer communication (Mahadewi & Iswara, 2025). Digitalization has proven to have a significant effect on the transformation of MSME digital marketing in Surakarta; The more complete the conversion of digital data in business activities, the more accurate the business model will be, which ultimately builds brand equity, strengthens customer relationships, saves costs, and provides ease of transactions through a complex and dynamically coordinated digital business strategy between the company's products, processes, and services.

6. Conclusion

External factors significantly affect the digitization of SME marketing in Surakarta; The ability to manage external opportunities and threats determines the level of analog to digital data transformation. Similarly, internal factors also have a significant impact; the better the resources are prepared, the greater the chance for Surakarta SMEs to digitize their company data. Furthermore, digitization was found to have a significant impact on the digitization of SME marketing, which means that comprehensive analog data processing improves the ability to carry out the digitization process of marketing activities. Finally, digitalization has proven to have a significant effect on digital marketing transformation, indicating that the ability to apply digital data in business processes will result in a more appropriate and accurate transformation business model.

SME online sales are better than conventional sales, entrepreneurs are encouraged to increase their internal capacity to adapt to the development of digital technology. This adaptation will strengthen SMIs' ability to handle transaction traffic and foster a healthy community of customers on their websites. In addition, the expansion of digital skills for all employees is essential, considering that the current management of digital employees is still the weakest. This step will support the creation of a company culture that is competent in the use of information and communication technology (ICT)

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