

The Influence of Digital Marketing on Msme Performance with Intellectual Capital and Competitive Advantage Aas Mediating Variables

(Survey of Culinary MSMEs in Solo)

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ABSTRACT

Indonesia continues to face major constraints in generating adequate formal employment, prompting many individuals to pursue economic opportunities through the Micro, Small, and Medium Enterprises (MSME) sector. This research examines the role of digital marketing in enhancing the performance of culinary MSMEs in Solo, incorporating intellectual capital and competitive advantage as intermediary constructs within the analytical framework. Data were collected from 100 culinary business owners and analyzed using partial least squares (PLS) with Likert-scale indicators. The findings indicate that digital marketing substantially enhances MSME performance by broadening their market reach and reinforcing the prominence of their brand. Intellectual capital—referring to knowledge, skills, and relational assets—also enhances business competitiveness and operational outcomes. In addition, competitive advantage derived from unique resources and capabilities supports MSMEs in navigating competitive pressures within the digital marketplace. The findings highlight that strengthening digital marketing practices in tandem with developing intellectual capital is essential for driving higher levels of business performance. As the research focuses solely on culinary MSMEs in Solo City, broader studies across diverse sectors and regions are recommended to strengthen the generalizability of the findings and provide deeper insights into MSME adaptation in the evolving digital economy.

Keywords: Culinary MSMEs, Digital Marketing, MSME Performance, Intellectual Capital, Competitive Advantage.

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INTRODUCTION

Indonesia faces significant challenges in creating adequate employment opportunities, leading people to consider alternative avenues by engaging in business, particularly in the Micro, Small, and Medium Enterprises (MSMEs) sector. MSMEs refer to independently managed enterprises run by individuals or small groups that operate within specific thresholds of assets and revenue. MSMEs represent a vital engine of economic expansion, as they absorb labor and stimulate the emergence of diverse entrepreneurial activities (Sugih & Fitriyah, 2024). MSMEs contribute to economic efficiency by providing employment opportunities and fostering resilient entrepreneurs. MSMEs also serve as a vehicle for equitable distribution of national income and prosperity (Hisnul et al., 2022).

The culinary industry is one kind of MSME enterprise. The culinary sector is projected to evolve into a strategic industry that contributes significantly to national economic activity and

complements the manufacturing sector. As food-related products constitute essential daily needs, the market offers substantial business potential. Culinary MSMEs can typically be established with relatively modest financial resources; however, their success depends heavily on creativity, innovation, and the entrepreneur's confidence in managing and expanding the business (Nurmala et al., 2022). MSMEs must first understand and master the financial knowledge, competencies, and attitudes needed to become successful entrepreneurs to achieve optimal performance. MSMEs commonly struggle with limited managerial skills, insufficient adaptability to shifts in the business environment, and weak networking capabilities. These conditions lead to low competitiveness, making it difficult for MSMEs to compete. Furthermore, not all MSMEs can optimally utilize digital technology to improve their performance (Mulyana et al., 2024).

In the global era, MSME performance is essential to winning competitions. MSME performance is a measure of business success in achieving goals. Improving MSME performance is necessary to improve community welfare. MSME performance is a result strongly linked to the achievement of organizational goals, particularly customer satisfaction, and can contribute to the economy. A variety of factors can influence MSME performance, and one of the most critical is the application of digital marketing. This concept encompasses promotional efforts carried out through digital tools and platforms, such as websites, social media, and other online branding methods designed to attract and interact with target audiences. Digital marketing is a medium commonly used by entrepreneurs as a strategy to develop their businesses, making them more accessible and widely known to the public (Madania et al., 2023).

A limited grasp of digital marketing among MSMEs has emerged as a major obstacle, restricting their ability to promote products effectively. MSMEs must capitalize on the digital era because changes in consumer mindsets can influence business owners to keep up with consumer trends, enabling them to innovate and create innovations to address the needs of consumers consistently (Sudirjo et al., 2023). Digital marketing has become a favorite among MSMEs due to its newfound ability to adapt to the digital era, and some businesses are gradually shifting from traditional to modern marketing models. Strong digital marketing will significantly improve MSME performance, meaning that MSMEs that manage digital marketing optimally will be able to achieve improved performance (Huda & Munandar, 2021). Sudirjo et al. (2023) in their research showed that digital marketing influences marketing performance, but Purwanti et al. (2022) research stated that digital marketing capabilities do not significantly impact business performance.

Intellectual capital helps MSMEs increase revenue or maintain their businesses, and offers advantages over competitors, thus supporting improved business performance (Pradiska et al., 2024). MSMEs face unpredictable market challenges, so strong entrepreneurial skills and extensive networks can assist in resource acquisition. MSMEs' intellectual capacity in strategic planning, acquiring and utilizing resources effectively, can improve their performance (Rosita et al., 2023).

MSMEs are expected to focus on managing their businesses through intellectual capital. MSMEs can learn how to use a combination of human, structural, and relational capital to increase their capacity to compete in the global marketplace (Zuliyati et al., 2017). Intellectual capital is the foundation for and facilitates success and competitive advantage through optimal performance. Intellectual capital, as a non-physical organizational resource, serves as a critical driver of MSME success (Sari & Pramuki, 2021). Najah et al. (2024) in their research showed that

intellectual capital influences MSME performance, while Cahyaningati et al. (2022) showed that intellectual capital does not.

MSMEs face challenging situations amidst a complex business environment and intense competition. This competition presents MSMEs with various opportunities and threats, requiring them to think creatively to navigate increasingly dynamic market conditions through their existing strengths (Soegihono & Yuniawan, 2023). Suchita et al. (2023) state that MSMEs absolutely must have a competitive advantage to achieve performance.

Competitive advantage plays a crucial role for MSMEs because it impacts product demand, so it is crucial to consider product advantages over competitors. Competitive advantage in MSMEs is based on their capabilities, characteristics, and resources. In improving marketing performance, one of which is through marketing innovation (Swastuti, 2020). MSMEs with a high level of competitive advantage can survive and grow because they can flexibly meet consumer needs, produce quality products, and are efficient with expenses (Darmawan et al., 2023). Septiani (2022) in their research showed that competitive advantage influences marketing performance, while Wicaksono et al. (2022) their study reported that competitive advantage does not contribute significantly to the performance outcomes of MSMEs.

Considering the current challenges encountered by MSMEs, particular emphasis must be placed on the strategic role of digital marketing for MSMEs in Surakarta as they navigate an increasingly competitive global environment. Strengthening digital marketing capabilities is essential for enabling these enterprises to compete effectively and sustain—or even enhance—their performance. This context motivates the researcher to undertake a study entitled "*The Effect of Digital Marketing on MSME Performance with Intellectual Capital and Competitive Advantage as Mediating Variables (Survey on Culinary MSMEs in Solo)*." The limitation in this research is that the scope of the research is still limited, namely in Solo City with the culinary business type, so that further research can be conducted on respondents with other business fields, for example, crafts and in a wider area.

LITERATURE REVIEW

The influence of digital marketing on intellectual capital

Evidence indicates that the application of digital marketing contributes positively to the development of intellectual capital, demonstrating its substantial role in shaping and strengthening this intangible resource (Liesander & Dharmayanti, 2018). The adoption of digital marketing enables MSMEs to enhance their intellectual capital, which comprises accumulated knowledge from employees, customer insights, organizational processes, and technological capabilities that collectively contribute to value creation. Findings from Pambreni et al. (2023) also confirm that digital marketing significantly affects the development of intellectual capital. On the basis of these empirical indications, the following hypothesis is formulated:

H₁: Digital marketing has a significant impact on intellectual capital.



The influence of digital marketing on competitive advantage

Competitive advantage is a unique position developed by MSMEs in facing competitors, and it may allow MSMEs to outperform them consistently (Tyas & Sari, 2023). MSMEs that adopt technological tools—particularly digital marketing—tend to demonstrate stronger competitive advantages (Naninsih et al., 2022). Evidence from Hudha et al., (2022) further indicates that digital marketing plays a significant role in enhancing competitive advantage, meaning that greater utilization of digital marketing corresponds to a higher level of competitiveness. Based on these empirical findings, the second hypothesis (H2) in this study is thereby substantiated.

H₂: Digital marketing has a significant influence on competitive advantage.

The influence of digital marketing on MSME performance

Digital marketing equips MSMEs with richer information channels and enables them to present products in ways that attract interest and stimulate consumer emotions, ultimately strengthening promotional effectiveness and boosting sales outcomes (Hudha et al., 2022). When digital marketing efforts are executed effectively, MSME performance tends to improve, indicating that enterprises capable of managing their digital presence comprehensively will experience superior business results (Huda & Munandar, 2021). Findings from Sudirjo et al. (2023) further demonstrate that digital marketing plays a substantial role in shaping marketing performance. Thus, the third hypothesis (H3) in this research is formulated as follows:

H₃: Digital marketing has a significant impact on the performance of MSMEs.

The influence of intellectual capital on MSME performance

MSMEs need to prioritize business management strategies that leverage intellectual capital, as this resource forms the basis for achieving sustainable success and securing a competitive position in the market (Sari, 2020). As a non-physical asset, intellectual capital acts as a critical determinant of MSME growth and overall performance (Sari & Pramuki, 2021). Empirical findings from Najah et al. (2024) also demonstrate that intellectual capital has a meaningful impact on improving MSME performance. Guided by this evidence, the fourth hypothesis (H4) in this study is expressed as follows:

H₄: Intellectual capital has a significant influence on the performance of MSMEs.

The influence of competitive advantage on MSME performance

Competitive advantage describes an enterprise's ability to surpass competitors by providing consumers with distinctive value, whether through more competitive pricing or enhanced product benefits (Septiani, 2022). Evidence presented by Putri (2022) shows that competitive advantage has a notable direct effect on MSME performance, indicating that differences in the level of competitive strength meaningfully influence business results. This suggests that MSMEs possessing strong competitive advantages tend to achieve better performance levels, whereas enterprises with weaker competitive positions generally experience



lower performance. In line with this reasoning, the fifth hypothesis (H5) in this study is proposed as follows:

H5: Competitive advantage has a significant impact on MSME performance.

The influence of digital marketing on the performance of MSMEs with intellectual capital as a mediating variable

Sidi & Yogatama (2019) emphasize that the use of social media—an integral component of digital marketing—enhances knowledge resources for both consumers and producers. Increasing levels of intellectual capital tend to elevate marketing performance. Digital marketing, as a technology-driven promotional approach, has also been shown to significantly strengthen a firm's intellectual capital and overall performance (Naninsih et al., 2022). Furthermore, findings by Pambreni et al. (2023) reveal that intellectual capital acts as a mediating mechanism linking digital marketing activities to improved marketing performance. Based on this empirical evidence, the sixth hypothesis (H6) in this study is formulated as follows:

H6: Digital marketing influences the performance of MSMEs with intellectual capital as a mediating variable.

The influence of digital marketing on the performance of MSMEs with a competitive advantage as a mediating variable

Strong digital marketing will result in increased marketing performance. It means that if MSMEs can plan and implement digital marketing optimally, they can create added value and competitive advantage, which consequently contributes to stronger performance outcomes (Tyas & Sari, 2023). Findings reported by Suchita et al. (2023) further demonstrates that competitive advantage acts as a meaningful mediating variable in linking digital marketing to marketing performance. In light of this empirical support, the seventh hypothesis (H7) in this study is articulated as follows:

H7: Digital marketing influences the performance of MSMEs with a competitive advantage as a mediating variable.

METHODS

This study was carried out among culinary MSMEs in Surakarta, a region known for its strong concentration of food-related businesses that continue to expand rapidly. The research population consisted of all culinary MSME owners in the city, while the sample was obtained through an accidental sampling technique, in which respondents were included based on their accessibility and suitability during the data collection process. Since the total number of MSMEs in the population could not be determined with certainty, the required sample size was determined through the application of the Leddy formula (Arikunto, 2018) utilizing a 95% level of confidence and permitting a 10% margin of error. This procedure produced a final sample of 100 respondents deemed appropriate for the purposes of this research.

This study involved four main variables: digital marketing, intellectual capital, competitive advantage, and MSME performance. Digital marketing is defined as marketing activities using internet media and interactive technology to promote products or brands, with indicators including incentive programs, site design, cost, and interactive features (Hubbina et al., 2023). Intellectual capital refers to non-physical resources comprising the knowledge, competencies, and expertise that contribute to enhancing organizational performance. This construct is commonly measured through three core components, namely human capital, structural capital, and customer capital (Cahyaningati et al., 2022). Competitive advantage describes the ability of MSMEs to create unique value that is difficult for competitors to imitate, while MSME performance is measured based on increased sales, profits, capital, customers, and the achievement of business goals (Febriana, 2021). The study gathered firsthand information using a survey instrument designed using a five-level Likert response format, in which participants expressed their stance from the lowest point of absolute rejection (1) to the highest point representing full endorsement (5).

The dataset was examined using the Partial Least Squares (PLS) analytical approach approach, a variance-based multivariate technique designed to assess the relationships among latent constructs (Abdillah & Hartono, 2015). The PLS framework comprises two analytical components: the inner model, which examines structural relationships between latent variables using indicators such as R-square, Q-square, and the Goodness of Fit (GoF), whereas the outer model evaluates the robustness of each observed indicator by reviewing its convergent validity, discriminant validity, composite reliability, and Cronbach's Alpha. A measurement framework is considered adequate only when it meets specific thresholds: indicator loadings must be higher than 0.50, the Average Variance Extracted (AVE) must surpass 0.50, composite reliability must exceed 0.80, and Cronbach's Alpha must be greater than 0.60 (Ghozali & Latan, 2015).

Respondent Description

The respondents used were 100 respondents using an accidental sampling technique among MSME owners in Surakarta. The results of the respondent characteristics can be explained as follows:

Respondent Characteristics Based on Gender

The data gathered on responses by gender are as follows:

Table 1. Respondent Gender

Gender	Respondents	
	Number (persons)	Percentage (%)
Male	59	59,0
Female	41	41,0
Total	100	100

Source: Processed primary data, 2025

The respondent profile by gender indicates that 59 individuals, or 59.0%, were male, while the remaining 41 respondents, accounting for 41.0%, were female.

Respondent Characteristics Based on Last Education

The distribution of respondents according to their highest level of education is presented as follows:

Table 2. Respondents' Last Education

Education	Respondents	
	Number (persons)	Percentage (%)
Elementary School	0	0,0
Middle School	12	12,0
High School	48	48,0
Academy/Diploma	31	31,0
Bachelor's Degree	9	9,0
Master's Degree	0	0,0
Total	100	100

Source: Processed primary data, 2025

The analysis of respondents' educational backgrounds revealed that none of the participants had completed only elementary school, representing (0.0%) of the sample, 12 respondents with junior high school education (12.0%), 48 high school (48.0%), 31 people with academy/diploma (31.0%), 9 people with bachelor's degree (9.0%) and no respondents with postgraduate education (S2) (0.0%).

Respondent Characteristics Based on Age

The distribution of respondents by age category is outlined in the following table:

Table 3. Respondent Age

age	Respondents	
	Number (persons)	Percentage (%)
< 35 years	18	18,0
35-45 years	46	46,0
> 45 years	36	36,0
Total	100	100

Source: Processed primary data, 2025

The age-based classification of respondents indicates that 18 individuals, representing (18.0%) of the sample were under 35 years old, 46 respondents aged 35-45 years (46.0%) and 36 respondents aged more than 45 years (36.0%).

RESULTS

Outer Model

The outer model functions to evaluate how well each indicator reflects its corresponding latent construct, essentially determining the extent to which the measured indicators correspond to one another and their underlying factors. This assessment involves examinations of both validity and reliability. Validity assessment examines the extent to which an instrument genuinely

reflects the construct it is designed to represent, whereas reliability analysis assesses the consistency and stability of respondents' answers across the questionnaire items.

The validity assessment in this study encompassed assessments of both convergent and discriminant validity. The reliability of each construct was evaluated through the calculation of composite reliability scores alongside Cronbach's Alpha coefficients. The outcomes of the outer model analysis are presented below.

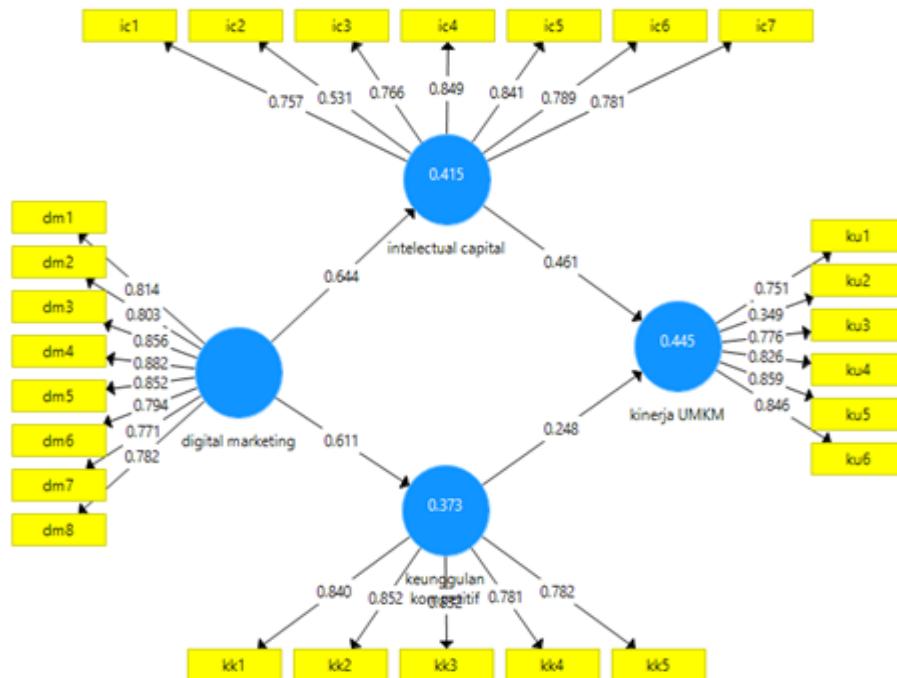


Figure 1. Outer Model

a. Validity Test

1) Convergent Validity

Convergent validity was evaluated by comparing the loading factor values produced in the outer model against the established threshold criteria. The indicator's loading factor value relative to the expected construct was >0.7 . Outer loading scores within the 0.50–0.60 interval are generally regarded as acceptable (Hair et al., 2021). Thus, indicator items with loading scores above 0.7 are categorized as valid, whereas those falling below the 0.7 threshold are considered inadequate and subject to removal. The outcomes derived from the evaluation of convergent validity, which present the loading values associated with each indicator are presented in the table below.

Table 4. Outer Loadings (Measurement Model)

Variable	Indicator	Loading Factor
Digital Marketing	dm1	0,810
	dm2	0,800
	dm3	0,851
	dm4	0,881



dm5	0,856
dm6	0,797
dm7	0,773
dm8	0,789
Intellectual Capital	
ic1	0,757
ic2	0,531
ic3	0,766
ic4	0,848
ic5	0,841
ic6	0,790
ic7	0,780
Competitive Advantage	
kk1	0,840
kk2	0,852
kk3	0,832
kk4	0,781
kk5	0,783
MSME Performance	
ku1	0,735
ku2	0,331
ku3	0,788
ku4	0,824
ku5	0,866
ku6	0,851

Source: processed primary data, 2025

The table results show that there are invalid indicators, namely, ic2 and ku2, because the outer loading values are 0.531 and 0.331, respectively, which are <0.7 , so the ic2 and ku2 the indicators are removed from further analysis. Then, stage 2 testing is carried out with the outer model results as follows:

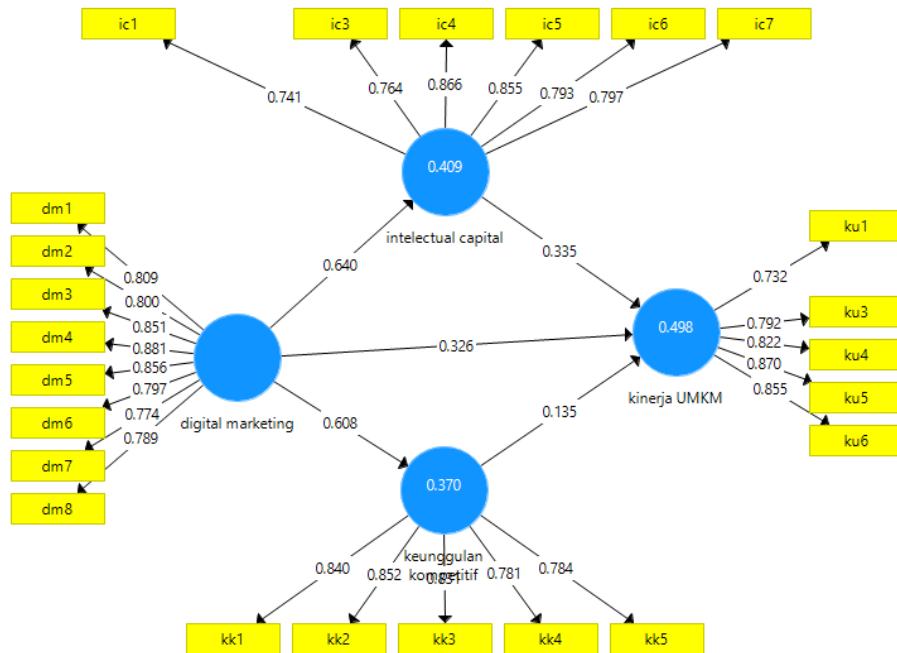


Figure 2. Outer Model Stage 2

The outcomes of Outer Loadings (Convergent Validity) at stage 2 are as below:

Table 5. Outer Loadings (Measurement Model)

Variable	Indicator	Loading Factor
Digital Marketing	dm1	0,809
	dm2	0,800
	dm3	0,851
	dm4	0,881
	dm5	0,856
	dm6	0,797
	dm7	0,774
	dm8	0,789
Intellectual Capital	ic1	0,741
	ic3	0,764
	ic4	0,866
	ic5	0,855
	ic6	0,793
	ic7	0,797
Competitive Advantage	kk1	0,840
	kk2	0,852
	kk3	0,831
	kk4	0,781

	kk5	0,784
MSME Performance	ku1	0,732
	ku3	0,792
	ku4	0,822
	ku5	0,870
	ku6	0,855

Sumber: data primer diolah, 2025

The correlation values between each construct and its indicators for digital marketing, intellectual capital, competitive advantage, and MSME performance each meet the established standards for convergent validity, as every loading factor exceeds 0.70. This indicates that the measurement model for all variables is appropriate and can be utilized in the subsequent hypothesis testing.

2) Discriminant validity

Discriminant validity is assessed through cross-loading values, which are used to determine whether each variable demonstrates adequate differentiation from other constructs. The evaluation in this study follows two key criteria: (1) each indicator is required to load more strongly on the construct it is designed to represent than on any alternative construct, and (2) the square root of the Average Variance Extracted (AVE) for a latent variable must exceed its correlations with the remaining constructs. Discriminant validity, therefore, signifies how clearly a construct can be distinguished empirically from other constructs, ensuring that each variable truly measures what it is conceptually designed to represent. The cross-loading values used to assess this aspect of the model are presented in the table below. The results of the discriminant validity assessment are as follows:

Table 6. Discriminant Validity Value (Cross Loading)

Konstruk	Digital marketing	Intellectual capital	Competitive Advantage	Kinerja UMKM
dm1	0,809	0,469	0,509	0,472
dm2	0,800	0,551	0,582	0,548
dm3	0,851	0,621	0,577	0,509
dm4	0,881	0,635	0,560	0,557
dm5	0,856	0,602	0,519	0,594
dm6	0,797	0,401	0,391	0,424
dm7	0,774	0,408	0,452	0,424
dm8	0,789	0,428	0,331	0,517
ic1	0,516	0,741	0,491	0,566
ic3	0,482	0,764	0,654	0,476
ic4	0,535	0,866	0,681	0,512
ic5	0,489	0,855	0,629	0,461
ic6	0,533	0,793	0,572	0,618
ic7	0,517	0,797	0,639	0,446

Konstruk	Digital marketing	Intellectual capital	Competitive Advantage	Kinerja UMKM
kk1	0,429	0,570	0,840	0,450
kk2	0,505	0,614	0,852	0,521
kk3	0,477	0,623	0,831	0,473
kk4	0,491	0,614	0,781	0,395
kk5	0,565	0,668	0,784	0,539
ku1	0,418	0,551	0,573	0,732
ku3	0,515	0,498	0,384	0,792
ku4	0,505	0,505	0,494	0,822
ku5	0,530	0,531	0,462	0,870
ku6	0,562	0,544	0,478	0,855

Source: processed primary data, 2025

The table shows that every indicator exhibits a higher loading on the latent construct it is intended to measure compared to its loadings on alternative constructs. This distribution confirms that the constructs fulfill the requirements for acceptable discriminant validity.

b. Reliability

Reliability assessment is undertaken to evaluate how consistently an instrument performs and whether it can yield repeatable outcomes under similar measurement conditions. In this research, the reliability of each construct was examined using two metrics: Cronbach's Alpha and composite reliability.

1) Cronbach Alpha

Reliability evaluation is further supported through an assessment of Cronbach's Alpha values. A construct is considered reliable when its Cronbach's Alpha coefficient exceeds 0.60. The Cronbach's Alpha results for each variable are presented below:

Table 7 Discriminant Validity Value (Cross Loading)

Variable	Cronbach's Alpha
Digital Marketing	0.931
Intellectual Capital	0.890
Competitive Advantage	0.876
MSME Performance	0.873

Source: processed primary data, 2025

The table indicates that the Cronbach's Alpha coefficients for all variables—digital marketing (0.931), intellectual capital (0.890), competitive advantage (0.876), and MSME performance (0.873)—exceed the 0.60 reliability threshold. These results confirm that each

construct demonstrates satisfactory internal consistency. Consequently, it can be concluded that all variables in the study possess a strong level of reliability.

2) Composite Reliability

Composite reliability is used to evaluate the degree of internal consistency among the indicators that form each construct. A construct is considered dependable when its composite reliability score is greater than 0.70. In this study, the composite reliability values for all variables are presented in the following table:

Table 8. Composite Reliability Variables

Variable	Composite Reliability	AVE
<i>Digital Marketing</i>	0.943	0,673
<i>Intellectual Capital</i>	0.916	0,646
<i>Competitive advantage</i>	0.910	0,669
MSME Performance	0.908	0,665

Source: processed primary data, 2025

The outputs for composite reliability and Cronbach's Alpha indicate that all constructs achieve values above the 0.70 threshold, thereby concluding that each variable utilized in the research model demonstrates good reliability and can be considered a dependable measurement, as it meets the requisite standards. The findings from the Average Variance Extracted (AVE) analysis demonstrate that every construct meets the required reliability standards. This is indicated by composite reliability values exceeding 0.70 and AVE scores above 0.50, which align with the commonly accepted measurement criteria.

Inner Model

Inner Model Evaluation is a method for determining the correlation of latent constructs or hypothesized variables. Accordingly, the evaluation of the inner model is based on the R-square, Q-square, and Goodness of Fit (GoF) indices. To generate the R-square and Q-square values, the researchers employed the Partial Least Squares (PLS) approach using SmartPLS 9 software. Then, they used a manual formula to obtain the Goodness of Fit (GoF) values.

Table 9. R-Square Value Results

Variable	R-Square
<i>Intellectual Capital</i>	0.409
<i>Competitive advantage</i>	0.370
MSME Performance	0.498

Source: processed primary data, 2025

The R-square results show that (1) the intellectual capital variable obtained a value of 0.409, indicating that digital marketing accounts for 40.9% of its variance, while the remaining 59.1% is influenced by factors outside the model. Furthermore, (2) the competitive advantage variable recorded an R-square of 0.370, meaning that digital marketing explains 37.0% of its variability, with the remaining 63.0% shaped by other unobserved variables. Lastly, (3) the MSME performance variable reached an R-square value of 0.498, demonstrating that digital marketing, intellectual capital, and competitive advantage together explain 49.8% of its variation, whereas 50.2% is determined by influences not included in this study.

The Goodness of Fit (GoF) assessment is employed to evaluate how well the PLS research model aligns with the data. Referring to the procedure outlined by Wetzels (2009), the GoF score is computed using the following formula:

$$GOF = \sqrt{AVE} \times \sqrt{R^2}$$

Table 10. Goodness of Fit (GoF) Value Results

Variabel	AVE	R Square	AVE X R2	$\sqrt{AVE} \times \sqrt{R^2}$
<i>Intellectual Capital</i>	0.646	0.409	0.264	0.514
<i>Competitive advantage</i>	0.669	0.370	0.248	0.498
<i>MSME Performance</i>	0.665	0.498	0.331	0.575

Source: processed primary data, 2025

Former and Lacker, as cited in Ghozali (2014), classify GoF values into three categories: 0.10 as low, 0.25 as moderate, and 0.36 as high. Using these benchmarks, (1) the GoF calculation for the Intellectual Capital construct yields a value of 0.514, indicating that the model demonstrates a strong overall fit for this variable, thus categorizing it as large; (2) the GoF value for the competitive advantage variable is 0.498, thus categorizing it as large; and (3) the GoF value for the MSME performance variable is 0.575, thus categorizing it as large.

Next, the Normed Fit Index (NFI) was measured. This measurement model is used as one of the tests in PLS, with the stipulation that the closer the NFI value is to 1, the more appropriate the model is for research.

Table 11. Normed Fit Index Value

Variable	Model Saturated
NFI	0,724

Source: processed primary data, 2025

The NFI output indicates a value of 0.724, and because this score approaches 1, the model can be considered to have a satisfactory level of fit.

Direct Effect Hypothesis Testing

Within the SmartPLS framework, hypothesis testing for each path in the model is conducted through simulation techniques. In this study, the bootstrap procedure was applied to the sample to generate the required statistical estimates. The use of bootstrapping also helps address potential non-normality issues in the dataset. The outcomes of the bootstrapping analysis generated through SmartPLS are presented as follows:

Table 12. Path Coefficient

Variabel	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
digital marketing -> intellectual capital	0,640	0,645	0,058	10,947	0,000
digital marketing -> competitive advantage	0,608	0,612	0,067	9,091	0,000
digital marketing -> MSME performance	0,326	0,325	0,098	3,315	0,001
intellectual capital -> MSME performance	0,335	0,330	0,124	2,705	0,007
competitive advantage -> MSME performance	0,135	0,141	0,125	1,086	0,278

Source: processed primary data, 2025

The bootstrapping output generated through the PLS analysis in this study is summarized as follows:

a. The influence of digital marketing on intellectual capital

The bootstrapping output reveals that the original sample value for digital marketing is 0.640, accompanied with a t-statistic of 10.846 and a p-value of 0.000, well under the 0.05 significance cutoff. This evidence verifies that digital marketing has a statistically meaningful impact on intellectual capital. The positive coefficient further suggests that stronger digital marketing practices are associated with higher levels of intellectual capital, indicating that improvements in digital marketing contribute directly to the enhancement of knowledge-based resources within MSMEs.

b. The influence of digital marketing on competitive advantage

The bootstrapping output shows that digital marketing yields an original sample estimate of 0.608, accompanied by a t-statistic of 9.091 and a p-value of 0.000, far beneath the 0.05 threshold for statistical significance. These findings confirm that digital marketing significantly influences competitive advantage. The positive coefficient further implies that stronger digital marketing efforts contribute to greater competitive advantage, meaning that improvements in digital marketing strategies are associated with higher levels of competitiveness among MSMEs.

c. The influence of digital marketing on MSME performance

The bootstrapping analysis reveals that digital marketing produces an original sample estimate of 0.326, supported by a t-value of 3.315 and a p-value of 0.001, which falls well beneath the 0.05 criterion for statistical significance. These results indicate that digital marketing significantly affects MSME performance. The positive coefficient further suggests that stronger digital marketing practices are associated with improved performance outcomes, meaning that MSMEs with more effective digital marketing tend to achieve better overall performance.

d. The influence of intellectual capital on MSME performance

The bootstrapping results demonstrate that intellectual capital yields an original sample estimate of 0.335, accompanied by a t-value of 2.705 and a p-value of 0.007, which is comfortably below the 0.05 significance benchmark. These findings affirm that intellectual capital has a statistically meaningful impact on MSME performance. The positive direction of the coefficient further implies that increases in intellectual capital tend to correspond with enhanced business performance, meaning that MSMEs with stronger knowledge resources, skills, and organizational capabilities tend to achieve better performance outcomes.

e. The influence of competitive advantage on MSME performance

The bootstrapping output reveals that competitive advantage produces an original sample estimate of 0.135, accompanied by a t-value of 1.086 and a p-value of 0.278—well above the 0.05 cutoff. This statistical pattern shows that competitive advantage does not have a meaningful or significant effect on MSME performance. Although the coefficient is positive—suggesting that higher competitive advantage would theoretically contribute to better performance—the effect is statistically insignificant, meaning that in this study competitive advantage cannot be confirmed as a meaningful predictor of MSME performance.

Indirect Hypothesis Testing (Indirect Effect)

The results of the indirect hypothesis testing are as follows:

Table 13. Indirect Effect

Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Digital marketing -> Intellectual capital -> MSME performance	0,214	0,213	0,085	2,513	0,012
digital marketing -> competitive advantage -> MSME performance	0,082	0,086	0,077	1,065	0,287

Source: processed primary data, 2025

a. The influence of digital marketing on MSME performance mediated by intellectual capital

The mediation analysis can be examined through the "Indirect Effects" section in SmartPLS. The results show that intellectual capital significantly mediates the relationship between digital marketing and MSME performance, as indicated by a p-value of 0.012, which is below the 0.05 significance threshold.

b. The influence of digital marketing on MSME performance mediated by competitive advantage

The mediation output presented in the "Indirect Effects" section of SmartPLS shows that competitive advantage fails to operate as an intervening variable

between digital marketing and MSME performance. This conclusion is supported by a p-value of 0.287, which lies above the 0.05 significance cutoff, indicating that the indirect effect is statistically insignificant.

DISCUSSION

The influence of digital marketing on intellectual capital

The results of this study indicate that digital marketing exerts a significant influence on intellectual capital, thereby validating H1, which posits that digital marketing shapes the intellectual capital of culinary MSMEs in Surakarta. This outcome is consistent with the findings of Pambreni et al. (2023), who likewise observed that digital marketing plays an important role in strengthening intellectual capital. In an increasingly digitalized landscape, MSMEs must actively adapt to shifting consumer expectations, as evolving consumer perspectives push business owners to stay aligned with market trends. This adaptation encourages continuous innovation and enables MSMEs to consistently design offerings that meet customer needs (Sudirjo et al., 2023). Digital marketing has become a favorite among MSMEs due to its newfound ability to adapt to the digital era, and some businesses are gradually shifting from traditional to modern marketing models.

Digital marketing exerts a favorable influence on intellectual capital, as its effective application can strengthen the knowledge-based resources owned by a business (Liesander & Dharmayanti, 2018). Through well-managed digital marketing strategies, MSMEs are able to expand and refine their intellectual capital, encompassing various knowledge resources, including employees, customers, processes, and technologies, that are useful in creating value for MSMEs.

The influence of digital marketing on competitive advantage

The study's findings demonstrate that digital marketing significantly influences competitive advantage, thereby confirming H2, which posits that digital marketing affects the competitive advantage of culinary MSMEs in Surakarta. This outcome is consistent with the work of Hudha et al. (2022) who reported that digital marketing contributes meaningfully to strengthening competitive advantage. In other words, as MSMEs intensify their use of digital marketing, their ability to compete effectively in the market also increases.

Competitive advantage is a unique position developed by MSMEs in facing competitors, and it may allow MSMEs to outperform them consistently (Tyas & Sari, 2023). MSMEs that adopt technological tools—particularly digital marketing—in promoting their products tend to possess stronger competitive advantages (Naninsih et al., 2022).

The influence of digital marketing on MSME performance

The results of this study demonstrate that digital marketing has a substantial and significant effect on MSME performance, thereby confirming H3, which posits that digital

marketing contributes to the performance of culinary MSMEs in Surakarta. This outcome aligns with the findings of Sudirjo et al. (2023), who showed that digital marketing plays an important role in strengthening marketing performance. Through digital channels, MSMEs gain access to richer information and greater opportunities to present their products in ways that are visually appealing and capable of eliciting emotional responses from consumers—factors that ultimately enhance marketing effectiveness and increase sales (Hudha et al., 2022). Moreover, well-executed digital marketing strategies tend to correlate with improved business outcomes, suggesting that MSMEs that manage their digital presence effectively are more likely to achieve superior performance (Huda & Munandar, 2021).

The influence of intellectual capital on MSME performance

The results of this study indicate that intellectual capital plays a substantial role in shaping MSME performance, thereby supporting H4, which states that intellectual capital influences the performance of culinary MSMEs in Surakarta. This finding aligns with the evidence presented by Najah et al. (2024), who found intellectual capital to be an important predictor of MSME performance. For this reason, MSMEs must prioritize the strategic management of their intellectual resources, as these knowledge-based assets form the foundation for achieving competitive success (Sari, 2020). Intellectual capital, as an intangible organizational resource, plays a decisive role in determining whether an MSME can operate effectively and secure sustainable success (Sari & Pramuki, 2021).

The influence of competitive advantage on MSME performance

The findings reveal that competitive advantage does not play a substantive role in shaping MSME performance, resulting in the rejection of H5, which posits that competitive advantage influences the performance of culinary MSMEs in Surakarta. This outcome aligns with the observations reported by Wicaksono et al. (2022), who also reported that competitive advantage does not contribute meaningfully to MSME performance. This lack of influence may stem from MSME owners' limited ability to manage or utilize their competitive strengths, or from a lack of awareness regarding how these strengths should be leveraged to improve performance. As a result, the competitive advantage possessed by the business is not translated into tangible performance improvements. This is despite the fact that competitive advantage, by definition, reflects a firm's capability to outperform rivals through unique value offerings, such as more competitive pricing or superior product benefits (Septiani, 2022).

The influence of digital marketing on the performance of MSMEs mediated by intellectual capital

The analysis demonstrates that intellectual capital functions as a mediating factor linking digital marketing to MSME performance, thereby supporting H6, which proposes that digital marketing affects MSME performance through intellectual capital. This finding highlights that intellectual capital is an essential component in optimizing the benefits of digital marketing. When strengthened, intellectual capital helps MSME owners develop a more constructive

mindset, enhances their awareness of market dynamics, and encourages greater creativity in formulating business strategies.

Sidi & Yogatama (2019) emphasize that social media—an integral component of digital marketing—offers substantial added value for MSMEs by enhancing their knowledge and understanding, which in turn supports efforts to improve business performance. In this context, greater intellectual capital is associated with stronger marketing outcomes, as noted by (Naninsih et al., 2022). This conclusion is in line with the results reported by Pambreni et al. (2023), who found that intellectual capital operates as an intermediary that bridges the effect of digital marketing on marketing performance.

The influence of digital marketing on MSME performance mediated by competitive advantage

The results of the analysis indicate that competitive advantage does not act as an intervening variable in the linkage between digital marketing and MSME performance, indicating that H7—which proposes that digital marketing affects MSME performance through competitive advantage—is not supported. This outcome may be attributed to MSME owners' limited ability to utilize digital marketing effectively to communicate and leverage their product strengths, resulting in no substantial improvement in performance. This outcome aligns with the findings of Hudha et al. (2022), who reported that digital marketing does not enhance marketing performance when viewed through the mechanism of competitive advantage. In other words, even high levels of digital marketing do not necessarily translate into better MSME performance when competitive advantage fails to function as an effective intermediary.

CONCLUSION

The study's findings reveal that digital marketing has a positive and significant impact on intellectual capital, competitive advantage, and the performance of culinary MSMEs in Solo. These results illustrate that implementing strong digital marketing strategies contributes to strengthening entrepreneurs' knowledge resources and improving their competitive stance, which subsequently contributes to improved business outcomes. Intellectual capital was also found to significantly strengthen MSME performance, underscoring the crucial role of accumulated knowledge, technical competencies, and experiential insights in driving business success. In contrast, competitive advantage did not show a significant impact on performance, suggesting that the advantages held by these MSMEs are not sufficiently strong or well-leveraged to produce direct performance improvements. Additionally, the analysis revealed that intellectual capital serves as a mediating variable linking digital marketing to performance, while competitive advantage does not function as an intermediary in this relationship. In line with these findings, culinary MSMEs in Solo are encouraged to make strategic use of digital platforms—particularly Instagram and TikTok—to broaden their promotional reach and enhance the visibility of their products in an increasingly competitive digital marketplace.

Furthermore, intellectual capital can be enhanced by deepening their understanding of digital business, participating in entrepreneurship training or seminars, and continuously adapting to developments in online marketing technology. MSMEs also need to develop creative, consumer-focused marketing strategies by creating unique culinary products, innovating continuously, and having the courage to take risks in business development to improve marketing performance and competitiveness optimally.

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