

DIGITAL TRANSFORMATION OF MANADO'S CULINARY MSMES: MARKETING ADAPTATION AND CREATIVE LOCAL PRODUCT INNOVATION

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ABSTRACT

This study analyzes the mechanism of digital transformation of culture-based culinary MSMEs in Manado through a mixed methods approach with an explanatory sequential design. A total of 100 MSMEs under the guidance of the Manado IKM Center were respondents in the quantitative analysis using PLS-SEM, which showed that Digital Marketing Strategy and Digital Marketing Performance are the main determinants of business sustainability. Technology acceptance and cultural product characteristics have a significant effect on digital marketing strategy, while Digital Readiness and Cultural Creativity Process do not show a direct effect. Qualitative analysis using NVivo reinforced these findings by revealing the strategic role of training, mentoring, and cultural narratives in shaping digital capabilities. Overall, this study confirms that the success of MSME digital transformation is the result of synergy between internal capabilities, cultural values, and institutional support from the Manado IKM Center, which together facilitate the strengthening of digital marketing performance and business sustainability.

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INTRODUCTION

Culinary MSMEs are a strategic sector that has a significant impact on the Indonesian economy. They not only support the regional economy but also play an important role in preserving the identity of the local culinary culture. Specifically, in Manado, culinary MSMEs, under the guidance of the IKM Center, have made a significant contribution to developing unique products based on local culture that have the potential to be competitive in the modern market. However, the development of digital technology has presented new challenges in the form of demands for adaptation to digital marketing systems, changes in consumer behaviour, and the need for continuous product innovation so that MSMEs can survive and thrive in the market.

Previous studies have shown that technology acceptance is an important factor in the intention to use digital services. (Walangitan & Sagai, 2023), barriers to digital inclusion and financial literacy are still found among small-business owners (Walangitan et al., 2024). In addition, online trust and content strategies mediate consumer purchase intention on social platforms, while social commerce platforms have been shown to strengthen the relationship between trade strategies and purchase intention sustainability (Walangitan, 2024). In the context of culinary MSMEs, local culture-based innovation, product creativity, and the role of government support are factors that contribute to increasing business competitiveness and sustainability (Creswell & Plano Clark, 2018; OECD, 2021; Priyono et al., 2020; Tambunan, 2019).

Although many studies have discussed the digitization of MSMEs, most have examined aspects of technology, innovation, and marketing strategies separately. Research that integrates technology acceptance, digital readiness, digital marketing strategies, marketing performance, culture-based product innovation, and business sustainability into a comprehensive model, especially for culinary MSMEs, is still limited, and there are no studies in the context of Manado. Furthermore, the use of the mixed methods explanatory sequential approach is rarely applied, especially for the integration of this comprehensive model. This approach allows for quantitative analysis and is reinforced by qualitative findings that can produce a deeper understanding of the real experiences of MSME actors (Dwivedi et al., 2020).

This study has several research gaps.

- (1) the lack of integration of technology, marketing strategies, and cultural innovation variables into a single conceptual model.
- (2) limited research on the context of local culture-based culinary MSMEs in Manado.
- (3) the scarcity of studies linking digital marketing performance with business sustainability; and
- (4) the paucity of research combining quantitative and qualitative approaches to understand the dynamics of MSME

Digital transformation. Based on the background and research gaps, this study aims to quantitatively analyze the influence of technology acceptance, digital marketing strategies, digital marketing performance, and business performance on the sustainability of local culture-based culinary MSMEs in Manado. It also aims to qualitatively explore how MSME actors interpret digital transformation, marketing strategy adaptation, cultural innovation, and government support to improve their business performance and sustainability.

Because this study uses a mixed methods explanatory sequential approach, hypotheses are used in the quantitative section, while research questions reflect only the qualitative section. Therefore, the qualitative research questions were formulated as follows:

1. How do culinary MSME players in Manado interpret the digital transformation process in their business activities?
2. How do MSME players adjust their marketing strategies in the digital era, particularly through social media and other digital platforms?
3. How do SMEs develop culturally based product innovations to maintain their competitiveness?
4. How is government support and external assistance perceived during the digital transformation process?
5. How do SME operators evaluate their business performance after implementing digital adaptation and product innovation?

This study adds to the current body of literature on MSME digital transformation, especially regarding local culture. Furthermore, this study provides feasible recommendations for MSMEs, the government, and enabling organizations to improve digital literacy, culture-driven product innovations, and sustainable and adaptive model-driven digital marketing within the MSME sector.

LITERATUR REVIEW

Theoretical Overview

The digital transformation of culinary MSME is multifaceted, including technology adjustment, cultural innovation, digital marketing, and reinforcement of business operations and survival. This clearly refers to Dynamic Capabilities Theory (Teece, 2007) as the umbrella or main theory that explains an organization's ability to sense, seize, and transform resources in the face of change. This theory is appropriate and relevant considering the overall research variables, namely, Digital Readiness (X1), Digital Technology Acceptance (X2), Cultural Creativity Process (X3), Cultural Product Characteristics (X4), Digital Marketing Strategy (M1), Digital Marketing Performance (M2), SME Performance (Y1), and Business Sustainability (Y2). All of these research variables represent the ability of MSMEs to recognize digital opportunities, utilize them through strategy, and renew business processes towards sustainability.

In the section on technology adoption, the theoretical basis used is the Technology Acceptance Model (Davis, 1989a, 1989b; Davis et al., 1989) and Diffusion of Innovation (Rogers, 2003). According to TAM, technology acceptance (X2) is dependent on perceptions of how technology has been found to be advantageous and easy to use, which in turn leads to the willingness of business actors to formulate digital strategies. DOI supports the role of Digital Readiness (X1) with respect to the level of device readiness, internet connection, and initial maturity of MSME in the process of undertaking the digitization process. These two theories link technological readiness and acceptance to MSMEs' ability to effectively enter the digital marketing field.

Cultural aspects are explained through the Resource-Based View (Barney, 1991), Creative Economy Theory (Howkins, 2001), and Cultural Branding Theory (D.C. Holt, 2016; D. B. Holt, 2004; D. B. Holt & Cameron, 2010). RBV states that cultural creativity (X3) and culture-based product characteristics (X4) are valuable, rare, and difficult-to-imitate resources, thereby increasing the competitiveness. The Creative Economy asserts that creativity based on culture generates further economic value by creating product innovation and differentiation. Cultural Branding describes the process of enhancing brand identity with local cultural elements, thus affecting the digital marketing strategy and increasing the level of emotional appeal in consumers. Thus, these four variables contribute to shaping digital marketing strategies.

At the marketing strategy and performance levels, this study uses the Digital Marketing Funnel (Chaffey & Smith, 2022) and Integrated Marketing Communication (Kotler & Keller, 2016) as their theoretical basis. Digital Marketing Strategy (M1) serves to increase awareness, engagement, conversion, and retention, whereas IMC emphasizes the importance of message consistency and digital branding across various platforms. A good strategy will improve Digital Marketing Performance (M2), which includes promotional effectiveness, increased customer interaction, and the achievement of digital sales conversion.

To understand its impact on businesses, this study uses the Balanced Scorecard (Kaplan & Norton, 1996, 2001) as the theoretical basis for SME Performance (Y1). The BSC explains that business performance is not only measured in terms of financial aspects but also customers, internal business processes, and learning and growth. Improvements in digital marketing performance (M2) are likely to increase operational efficiency, customer growth, and MSME revenue.

Finally, business sustainability (Y2) in this study is explained through the Triple Bottom Line (Elkington, 1997) and Sustainable Business Model (Geissdoerfer et al., 2018). Business sustainability depends not only on profitability but also on social and environmental factors. Cultural innovation, digital marketing performance, and business performance are important driving factors that help MSMEs maintain their competitiveness amid increasingly digital and competitive market challenges.

In addition to quantitative variables, this study examined institutional support through a qualitative approach based on Institutional Theory (Scott, 2005).

This theory explains how regulations, norms, and support programs from the government or IKM Centers influence the behavior of technology adoption and digital strategies in MSMEs. The institutional support is a

situational attribute that enhances the preparedness and ability of MSMEs to go through the process of digital transformation.

Overall, this Literature Review integrates the theories of dynamic capabilities, technology adoption, cultural innovation, digital strategies, business performance, and sustainability to build a strong theoretical basis for the relationship between variables in the research model.

Links Between Variables

This research model is based on the relationships between digital readiness, technology acceptance, cultural creativity processes, cultural product characteristics, digital marketing strategies, digital marketing performance, MSME performance, and business sustainability. Digital Readiness is considered the foundation for digital adoption and transformation (Alqam, 2021; Pingali, 2024). Walangitan, in his research, states that MSMEs in Tomohon also emphasize that digital readiness affects the ability of businesses to utilize digital platforms, so that theoretically it can affect digital marketing strategies and MSME performance (Walangitan, 2025).

Furthermore, Digital Technology Acceptance has strong theoretical support through TAM (Davis, 1989a), where technology acceptance drives the implementation of digital strategies (Tiago & Veríssimo, 2014). Other studies show that in Manado, the level of technology acceptance influences technology usage behavior and business effectiveness. Therefore, this variable is theoretically related to digital marketing strategies and MSME performance (Walangitan et al. 2020).

Next, we discuss the cultural variables. Cultural creativity processes and cultural product characteristics can also influence digital marketing strategies. Cultural creativity creates strong symbolic and aesthetic values (Edson & Dean, 2023; Suroso & Wahyudi, 2022). Cultural product characteristics require specific marketing strategies to highlight their cultural value (Kartajaya et al., 2021). Walangitan (2025) shows that local cultural narratives are an important element of the digital strategies of tradition-based MSMEs. Theoretically, these two variables can also influence MSME performance (Walangitan 2025).

Digital Marketing Strategy then influences Digital Marketing Performance, as RBV asserts that digital strategy is a capability that strengthens marketing effectiveness (Sharabati et al., 2024; Tiago & Veríssimo, 2014). MSMEs that develop good digital strategies are better able to increase their market reach and interaction (Walangitan, 2025).

Furthermore, Digital Marketing Performance affects Business Sustainability, as marketing performance is a key driver of business resilience (Kumar, 2023; Pratama & Wibowo, 2023). Improvements in digital marketing performance are closely related to the stability of MSME income (Walangitan, 2025). On the other hand, theoretically, SME Performance also influences business sustainability, although the influence may vary depending on the digital context (Ashfaq et al., 2021; Wiklund & Shepherd, 2020). Furthermore, two mediating relationships are theoretically reinforced. First, Digital Marketing Strategy mediates the influence of Digital Technology Acceptance on Digital Marketing Performance because technology acceptance only has an impact when it is manifested in digital strategies (Sharabati et al., 2024; Walangitan, 2025). Second, Digital Marketing Performance mediates the influence of Digital Marketing Strategy on Business Sustainability, where digital marketing strategies improve business sustainability through improved marketing performance (Pratama & Wibowo, 2023; Walangitan, 2025). Third,

Overall, it has a strong theoretical basis and is supported by empirical findings, thereby reinforcing the relevance of the model in the context of Indonesian MSMEs, as shown in the following research framework.

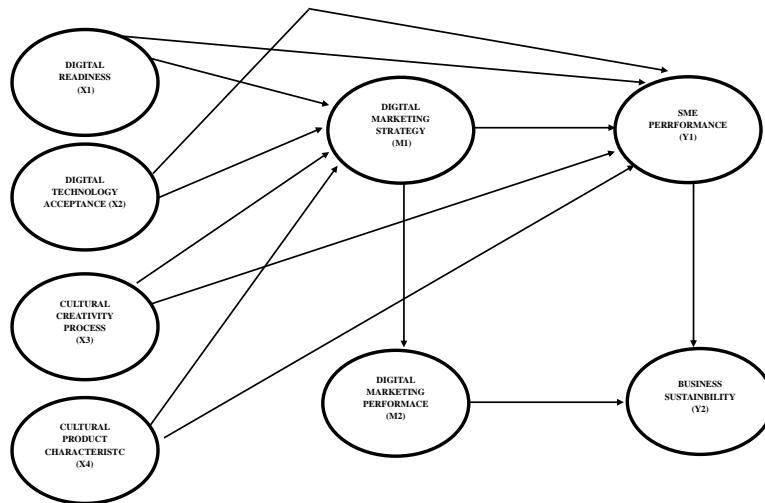


Figure 1. Research Paradigm

Research Hypothesis

The research hypothesis is as follows:

(The Influence of Digital Readiness)

H1: Digital Readiness influences Digital Marketing Strategy.

H1b: Digital Readiness influences SME Performance.

(The Influence of Digital Technology Acceptance)

H2: Digital Technology Acceptance influences digital marketing strategies.

H2b: Digital Technology Acceptance influences SME Performance.

(The Influence of Cultural Creativity Process)

H3: The Cultural Creativity Process influences Digital Marketing Strategy.

H3b: The Cultural Creativity Process influences SME Performance.

(Influence of Cultural Product Characteristics)

H4: Cultural Product Characteristics influence digital marketing strategies.

H4b: Cultural Product Characteristics influence SME Performance.

(Influence of Digital Marketing Strategy)

H5: Digital Marketing Strategy influences Digital Marketing Performance.

H5b: Digital Marketing Strategy influences SME Performance.

(The Influence of Digital Marketing Performance and SME Performance)

H7: Digital Marketing Performance influences Business Sustainability.

H8: SME Performance influences Business Sustainability.

H9: Digital Marketing Strategy mediates the influence of Digital Technology Acceptance on Digital Marketing Performance.

H10: Digital Marketing Performance mediates the influence of Digital Marketing Strategy on Business Sustainability.

RESEARCH METHOD

Research Design

This study used a mixed-methods approach with an explanatory sequential design, in line with the recommendations for combining quantitative and qualitative data to obtain both breadth and depth of understanding (Dwivedi et al., 2020). The quantitative process involved analyzing the links between Digital Technology Acceptance, Digital Marketing Strategy, Digital Marketing Performance, MSME Performance, and Business Sustainability. The qualitative phase was used to explain and enrich the interpretation of these statistical relationships.

Population and Sample

The population consisted of micro, small, and medium enterprises (MSMEs) in the culinary industry mentored by the Manado IKM Center in North Sulawesi, Indonesia. The sample size was quantitative and included the owners or managers of MSMEs that were operating and those who had attended digitalization or marketing-related mentorship programs. N = 100 respondents returned the questionnaires. To carry out the qualitative phase, purposive sampling was used to choose a number of respondents to represent the variation in business size, years of operation, and level of use of digital technologies.

Instruments

A structured questionnaire, created based on previous research studies on the (digital technology) adoption and (digital marketing) performance (e.g., Dwivedi et al., 2020) and modified to the local MSME context in Indonesia, was used to conduct quantitative research. The respondents rated the five constructs, namely, Digital Technology Acceptance, Digital Marketing Strategy, Digital Marketing Performance, MSME Performance, and Business Sustainability on a 5-point Likert scale. A semi-structured interview guide based on the experiences of digital transformation, digital marketing adaptation, local product innovation, institutional support, and perceived business performance and sustainability was used to gather qualitative information (Trott, 2021).

Data Collection Procedures

Questionnaires were administered to respondents during mentoring events and via online platforms in the quantitative phase to eligible MSME owners or managers. The respondents were allowed to participate voluntarily, and the survey was conducted after providing them with a concise explanation of the study objectives. During the qualitative step, the participants of the study were invited to participate in in-depth semi-structured interviews and the selection of MSME actors. The interviews were held on mutually agreed dates, audio-taped, and transcribed for further analysis.

Data Analysis

Structural equation modeling with Partial Least Squares (SEM-PLS) was applied to analyze the quantitative data. The measurement model was tested for reliability and validity, and the structural model was tested to examine the hypothesized relationships and measure the explanatory power of the model. NVivo software was used to analyze qualitative data thematically, in accordance with the processes of coding, categorization, and theme development (Trott 2021). Digital transformation, digital marketing practices, innovation, support, perceived business performance, and sustainability themes were then incorporated with the quantitative results to provide a more holistic interpretation.

Ethical Considerations

In this study, ethical standards were adhered to. Participation was voluntary, and informed consent was obtained from all the respondents. The privacy of individual and corporate data was considered. Any information was well-kept and could be utilized for academic and research purposes.

RESULT AND DISCUSSION

The results of this study are presented in two stages: quantitative findings based on PLS-SEM analysis and qualitative findings based on NVivo thematic analysis, which are then integrated to obtain a more comprehensive understanding.

Result

Respondent Profile

This study included 100 micro, small, and medium enterprise owners in the culinary industry in Manado, the majority of whom are women (92%), which indicates the core position of women in the culinary and creative sectors of the economy in the city. The age of the respondents was 19-70 years with an average of 43.2 years, which means that the majority of the respondents were in their productive age group and had experience in the field of entrepreneurship. Education-wise, most of them were high school graduates (46%), followed by college graduates (34%), which indicates a rather educated population that is in the process of actively embracing digital change. After correcting a single mistake in data entry, the average time of business operation was 5.7 years, which means that the majority of businesses are still very young but strong and can grow. The most common forms of business are home cooking and traditional Manado cuisine, with 83% of the businesses being sole proprietorships. Altogether, these results demonstrate that culinary SMEs in Manado are guided by experienced and dynamic female entrepreneurs who embrace cultural authenticity and digital innovations to remain competitive in a dynamic market.

Quantitative Result

Measurement Model (Outer Model)

In PLS-SEM analysis, model testing is a crucial stage to ensure that each construct in the study is accurately measured using the indicators. The measurement model (outer model) was used to analyze the quality and feasibility of the research instruments by testing the validity and reliability of the various constructs. This is important to ensure that the latent variables actually measure what is theoretically being measured and that the analysis of relationships between variables can be done correctly in the structural model. Therefore, before testing the relationships between constructs, this study first evaluated the measurement model through convergent validity, discriminant validity, and construct reliability tests, in accordance with the PLS-SEM guidelines (Gronroos, 2017; Hu & Bentler, 1999; Morgan & Hunt, 1994).

Table 1. Measurement Model Evaluation

Construct/Variable	Outer Loading Min	Composite reliability (rho_c)	Average variance extracted (AVE)	HTMT Max	Status
Business Sustainability (Y2)	0.822	0.847	0.735	0.833	Valid
Cultural Creativity Process (X3)	0.860	0.881	0.787	0.856	Valid
Cultural Product Characteristic (X4)	0.795	0.890	0.669	0.816	Valid
Digital Marketing Performance (M2)	0.784	0.841	0.639	0.806	Valid
Digital Marketing Strategy (M1)	0.726	0.845	0.646	0.765	Valid
Digital Readiness (X1)	0.946	0.949	0.902	0.796	Valid
Digital Technology Acceptance (X2)	0.785	0.931	0.771	0.702	Valid
SME Performance (Y1)	0.741	0.801	0.669		Valid

The results of convergent validity testing show that all indicators have outer loading values in the range of 0.726–0.946, thus meeting the minimum criterion of 0.70 as an indicator that can represent the construct well. These findings indicate that all the indicators used in this study are convergently valid.

Moreover, the Composite Reliability (CR) construct reliability indicated a value between 0.801 and 0.949, which was beyond the limit of 0.70 in terms of feasibility (20). This high CR value confirms that all constructs have excellent internal consistency and are good for measuring research variables. This is also supported by the value of the Average Variance Extracted (AVE), which is between 0.639 and 0.902, above the minimum expected value of 0.50 (18), indicating that all constructs have fulfilled the convergent validity requirements.

Discriminant validity was tested using the Fornell–Larcker Criterion, which shows that the square root of the AVE of each construct is higher than its correlation with other constructs. This proves that each construct in this study is unique and can be empirically distinguished from the others (Morgan and Hunt, 1994). The HTMT (Heterotrait-Monotrait Ratio) test also showed values in the range of 0.702–0.856, which is still below the maximum limit of 0.90, so that all constructs met the discriminant validity requirement.

Overall, the results of this outer model evaluation confirm that all constructs in this study met the reliability and validity requirements in accordance with PLS-SEM standards. If all of these criteria are met, the measurement model can be declared adequate and feasible to proceed to the structural model testing stage.

Structural Model (Inner Model)

The structural model was used to assess the relationships between the constructs hypothesized in this study. Structural model testing aims to determine the strength of the relationship between latent variables based on the path coefficient values and statistical significance generated through the bootstrapping process. This is shown in the table below:

Table 2. Structural Model Evaluation

No	Hipotesis	Jalur / Path	Path Coef (β)	p-value	Keterangan hasil
1	H1: Digital Readiness influences Marketing Strategy	X1 - M1	0.055	0.620	Tidak signifikan (ditolak)
2	H1b: Digital Readiness influences SME Performance	X1 - Y1	0.046	0.744	Tidak signifikan (ditolak).
3	H2: Digital Technology Acceptance influences Digital Marketing Strategy	X2 - M1	0.419	0.000	Signifikan (diterima)
4	H2b: Digital Technology Acceptance berpengaruh terhadap SME Performance	X2 - Y1	0.213	0.182	Tidak signifikan (ditolak)
5	H3: Cultural Creativity Process influences Digital Marketing Strategy	X3 - M1	0.209	0.064	Tidak signifikan (ditolak)
6	H3b: Cultural Creativity Process influences SME Performance	X3 - Y1	0.136	0.215	Tidak signifikan (ditolak).
7	H4: Cultural Product Characteristics influences Digital Marketing Strategy	X4 - M1	0.175	0.045	Signifikan (diterima)
8	H4b (baru) : Cultural Product Characteristics influences SME Performance	X4 - Y1	0.087	0.421	Tidak signifikan (ditolak).
9	H5: Digital Marketing Strategy influences Digital Marketing Performance	M1 - M2	0.600	0.000	Signifikan (diterima)
10	H5b: Digital Marketing Strategy influences SME Performance	M1 - Y1	0.201	0.092	Tidak signifikan (ditolak).
11	H7: Digital Marketing Performance Influences Business Sustainability	M2 - Y2	0.443	0.000	Signifikan (diterima)
12	H8: SME Performance influences Business Sustainability	Y1 - Y2	0.189	0.059	Tidak signifikan (ditolak)
13	H9: Digital Marketing Strategy mediates the influences of Digital Technology Acceptance on Digital Marketing Performance.	X2 - M1 - M2	0.252 (indirect)	0.000	Mediasi signifikan (diterima).
14	H10: Digital Marketing Performance mediates the influence of Digital Marketing Strategy on Business Sustainability.	M1 - M2 - Y2	0.304 (indirect)	0.000	Mediasi signifikan (partial) karena direct M1 - Y2 signifikan.

The test results show that the relationship between Digital Readiness and Digital Marketing Strategy is not significant ($\beta = 0.055$; $p = 0.620$). This indicates that the level of digital readiness of MSMEs is not yet capable of directly encouraging the formation of a digital marketing strategy. Similarly, the effect of Digital Readiness on SME Performance is not significant ($\beta = 0.046$; $p = 0.744$), which means that digital readiness does not automatically improve business performance, possibly because this readiness has not been followed by strategic utilization in the context of operations and marketing.

In contrast to Digital Readiness, the Digital Technology Acceptance variable shows a positive and significant influence on Digital Marketing Strategy ($\beta = 0.419$; $p = 0.000$). This result is consistent with the Technology

Acceptance Model (TAM) framework, which states that acceptance of technology will encourage increased use of technology in business activities, including the formulation of digital marketing strategies. However, Digital Technology Acceptance does not have a significant effect on SME Performance ($\beta = 0.213$; $p = 0.182$), indicating that technology acceptance has not been able to produce a direct impact on business performance without an effective digital strategy as an intermediary.

Culture-based variables, namely the Cultural Creativity Process, also did not show a significant effect on Digital Marketing Strategy ($\beta = 0.209$; $p = 0.064$), although the p-value was close to the significance threshold. This indicates that cultural creativity tends to influence digital strategy but is not yet strong or consistent enough to produce a consistent effect. Cultural creativity also does not have a significant effect on SME Performance ($\beta = 0.136$; $p = 0.215$), which means that the creative process does not necessarily improve business performance without being supported by strong marketing strategies and market orientation.

Conversely, Cultural Product Characteristics have a significant positive influence on Digital Marketing Strategy ($\beta = 0.175$; $p = 0.045$). This means that the stronger the cultural characteristics of a product, such as uniqueness, symbolism, and aesthetic value, the greater the tendency for businesses to develop digital marketing strategies that focus on enhancing these values. However, the influence of Cultural Product Characteristics on SME Performance was not significant ($\beta = 0.087$; $p = 0.421$). Therefore, it can be concluded that product cultural characteristics alone are not sufficient to improve business performance if they are not accompanied by effective marketing strategies.

One of the strongest relationships in the model is the influence of Digital Marketing Strategy on Digital Marketing Performance, which is significant ($\beta = 0.600$; $p = 0.000$). This finding indicates that a good digital marketing strategy results in higher marketing performance, such as increased audience reach, customer interaction and potential sales conversions. However, Digital Marketing Strategy does not have a significant effect on SME Performance ($\beta = 0.201$; $p = 0.092$), which shows that improvements in digital marketing strategy do not directly improve overall business performance, especially if the financial performance of MSMEs does not fully depend on digital channels.

Furthermore, the effect of Digital Marketing Performance on Business Sustainability was significant ($\beta = 0.443$; $p = 0.000$), indicating that Digital Marketing Performance is an important factor that supports Business Sustainability. MSMEs that can produce good digital marketing performance tend to have a greater chance of maintaining their business in the long term. However, SME Performance does not have a significant effect on Business Sustainability ($\beta = 0.189$; $p = 0.059$), even though it is close to the significance level. This shows that business performance plays a role in sustainability, but is not statistically strong enough in this model.

Two mediation paths in the model showed significant results: First, Digital Technology Acceptance influences Digital Marketing Performance through Digital Marketing Strategy (indirect $\beta = 0.252$; $p = 0.000$). This means that technology acceptance does not directly improve digital marketing performance but has an impact on the formation of effective digital marketing strategies. In other words, technology accepted by business actors will only drive improvements in marketing performance if it is translated into a mature digital strategy.

Second, Digital Marketing Strategy Influences Business Sustainability through Digital Marketing Performance (indirect $\beta = 0.304$; $p = 0.000$). This indicates that digital marketing performance is an important mechanism that explains how digital marketing strategies can improve the sustainability of a business. This mediation is partial because the direct influence of digital marketing strategies on business sustainability is also significant.

Overall, the results of the structural model evaluation show that the roles of digital marketing strategy and digital marketing performance are dominant in driving changes in downstream variables, particularly in terms of business sustainability. Conversely, variables based on digital readiness and culture require an intermediary process to have a stronger impact on business performance.

Furthermore, the results of the structural model evaluation show that the model's predictive ability is moderate for most endogenous variables. Digital Marketing Strategy has an R^2 value of 0.481, indicating that almost half of the variation can be explained by Digital Readiness, Digital Technology Acceptance, Cultural Creativity Process, and

Cultural Product Characteristics. This finding is consistent with the hypothesis test results, where only Digital Technology Acceptance and Cultural Product Characteristics made a significant contribution, while Digital Readiness and Cultural Creativity Process had only a small effect ($f^2 = 0.003$ and 0.050 , respectively).

The Digital Marketing Strategy has the largest contribution of 0.562 , which is the highest predictive value of Digital Marketing Performance ($f^2 = 0.562$) and demonstrates the important influence on the model of Digital Marketing Strategy as well as the strongest relationship. This is in line with the hypothesis results, which show that digital marketing strategy plays an important role in improving digital marketing performance. SME Performance has the lowest prediction value ($R^2 = 0.299$), and all exogenous variables, such as Digital Readiness, Digital Technology Acceptance, Cultural Creativity Process, Cultural Product Characteristics, and Digital Marketing Strategy, only provide a small effect size (0.001 – 0.030). This is also in line with the structural results, which show that all paths to SME Performance are insignificant. For Business Sustainability, the R^2 value of 0.313 indicates that the model can moderately explain business sustainability. The only predictor that had a significant effect was Digital Marketing Performance, which also had a moderate effect size ($f^2 = 0.219$). Conversely, the direct effect of SME Performance on Business Sustainability is small ($f^2 = 0.040$) and insignificant.

Two significant mediations (H9 and H11) reinforced the relationships between the variables. Digital Technology Acceptance impacts the improvement of Digital Marketing Performance through Digital Marketing Strategy, while Digital Marketing Strategy improves Business Sustainability through Digital Marketing Performance. These two mediation paths show a substantive contribution to explaining how technological capabilities and digital strategies shape the marketing performance and business sustainability.

Overall, the model shows that the role of digital marketing—both strategy and performance—is a dominant factor in influencing business sustainability, while readiness and culture variables have only a marginal effect, except in the context of digital strategy. This suggests that MSMEs must maximize their digital marketing strategy and implementation to achieve optimal business performance and sustainability.

Predictive Power Evaluation (PLSpredict)

The PLSpredict results showed that all indicators had positive Q^2 predict values, indicating that the model had predictive relevance. The indicators with the highest Q^2 predict values are found in the Digital Marketing Strategy ($DMS2 = 0.351$) and Digital Marketing Performance ($DMP2 = 0.270$) variables, indicating that these two constructs have the best predictive ability in the model. A comparison of the RMSE values between the PLS-SEM model and the linear model (LM) shows that most indicators have a PLS-SEM RMSE that is lower than or comparable to the LM RMSE, especially in the Digital Marketing Strategy and Digital Marketing Performance constructs. This indicates that the model has a good predictive power for both variables.

Meanwhile, indicators on SME Performance and Business Sustainability show relatively small RMSE differences between PLS and LM, so that their predictive capabilities fall into the moderate predictive power category and remain acceptable. Overall, PLSpredict confirms that the model has good predictive capabilities, especially for variables related to digital marketing strategies and performance.

Model Fit

The evaluation of model fit using the Standardized Root Mean Square Residual (SRMR) shows that the SRMR value for the saturated model is 0.077 , which is below the 0.08 threshold and therefore meets the criteria for a good fit. The SRMR value for the estimated model is 0.117 , slightly above the 0.10 threshold, but in PLS-SEM models, saturated models are considered more representative in assessing the overall fit of the model. The NFI value of 0.667 (saturated) reflects a moderate level of fit and is commonly found in complex PLS-SEM models. Thus, this research model is considered to have an adequate fit for continuing the structural analysis. It can be concluded that this research model shows that the main strength lies in the role of digital marketing strategy and digital marketing performance, both as direct predictors and as mediators. Conversely, the variables of readiness and culture have only a marginal or insignificant effect on MSME performance and business sustainability. The overall predictive ability of the model is considered good, especially in the constructs of digital strategy and performance, which are suitable for the context of digital-based MSMEs.

Qualitative

The word cloud results show that words such as “digital,” “marketing,” “innovation,” “SMEs,” “products,” “training,” and “adaptation” appeared with the highest frequency. This illustrates the respondents' main focus on the digital transformation process, particularly in terms of marketing strategies and local product innovation. The dominance of the words “digital” and “marketing” indicates that culinary SMEs in Manado have focused their attention on utilizing technology as a means of survival and growth in an era of modern competition, while the words ‘innovation’ and “products” indicate the importance of culture-based creativity in adapting to the needs of the digital market.

Interestingly, although the theme of “Government Support/Guidance” appeared in the thematic coding results, the word “government” did not dominate the word cloud. This was because the word was rarely mentioned explicitly by respondents. Rather, the idea of governmental assistance is more commonly introduced in the dimensions of training, guidance, or coaching, which are more commonly used in their narratives. Thus, the word cloud reflects that the most prominent discourse in the perception of SMES actors is adaptation to technology, creative innovation, and tangible forms of support from external coaching, rather than direct mention of the institution itself. This is shown in the figure below.



Figure 2. Word Clouds

Based on the results of NVivo thematic coding, five main themes emerged that describe the dynamics of culinary SMES transformation in Manado: (1) Digital Transformation, (2) Digital Marketing Adaptation, (3) Local Product Innovation, (4) Government Support/Guidance, and (5) Perceptions of Business Performance. The Digital Transformation theme highlights the change in business behavior from conventional systems to digitization in terms of promotion, transactions, and customer service. The Digital Marketing Adaptation theme shows the ability of business actors to use social media to reach a wider market, while Local Product Innovation emphasizes creativity in promoting regional cultural values in products that are attractive to the modern market.

Tabel 3. Triangulation Quantitative and Qualitative

Table 3: Triangulation Quantitative and Qualitative				
Path		Quantitative Result (PLS-SEM)	Qualitative Result (NVivo)	Triangulated Interpretation
Digital Acceptance	Technology → Digital Marketing Strategy	Significant ($\beta = 0.419$; $p < 0.001$)	Theme: training, coaching, trust in technology	Training builds confidence, which then translates into digital strategy

Cultural Characteristics → Digital Marketing Strategy	Product Significant ($\beta = 0.175$; $p < 0.05$)	Theme: local product innovation, cultural stories, local identity	Cultural values are activated into content strategies and digital differentiation.
Digital Marketing Strategy → Digital Marketing Performance	Strongest path ($\beta = 0.600$; $p < 0.001$)	Theme: content, social media, engagement, regular posting	Content consistency directly improves digital marketing performance.
Digital Marketing Performance → Business Sustainability	Significant ($\beta = 0.443$; $p < 0.001$)	Themes: sales stability, online reputation, repeat buyers	Business continuity is determined by digital interactions, not just traditional operations.
Digital Readiness	Not Significant	MSMEs have the tools but do not know how to optimize them	Technological readiness does not guarantee strategic capability.
Cultural Creativity Process	Not Significant	Creative but doesn't know how to present digitally	Creativity is worthless without the right content strategy.
(Mediation) H9	Significant ($X_2 \rightarrow M_1 \rightarrow M_2$)	Narrative: learning technology - content strategy - increased engagement	Qualitative explains the mediation mechanism.
(Mediation) H11	Significant ($M_1 \rightarrow M_2 \rightarrow Y_2$)	MSMEs: "If you post diligently, sales will be stable."	Mediation is confirmed in both data sets.

Discussion

The findings of this study indicate that digital marketing strategies and performance are key mechanisms that drive the digital transformation of culture-based culinary MSMEs in Manado. The study setting of 100 culinary MSMEs managed by the Manado IKM center is a major factor in manifesting these dynamics.

Most of the business owners are women (92), with an average age of 43.2 years and 5.7 years of experience in business, indicating that the digital transformation in Manado is being driven by strong and flexible women entrepreneurs. This composition is in line with the characteristics of culinary MSMEs under the guidance of Sentra IKM, which are known to be active in training, mentoring, and digitization programs initiated by the government.

The quantitative results show that the relationship between Digital Marketing Strategy and Digital Marketing Performance is the strongest pathway in the structural model. This confirms that the success of MSMEs in the digital ecosystem is largely determined by their ability to create consistent and relevant digital marketing strategies. This result corresponds to the existing body of knowledge on the role of online trust, consistency of the message, and storytelling in online content (OECD, 2021; Walangitan, 2024). However, in the context of the Manado IKM Center, this strategy is not only the result of individual initiatives but also the direct impact of digital education and mentoring programs provided by the institution. Several respondents stated that they first learned about content strategies, digital promotion features, and storytelling approaches after attending Sentra IKM workshops.

The significant influence of Digital Technology Acceptance on Digital Marketing Strategy extends the framework of the Technology Acceptance Model (Hair et al., 2019). The qualitative data demonstrate that the desire to participate in regular training at the IKM Center, particularly in social media, product photography, and mastering the marketplace, influences MSMEs' confidence in using technology. Qualitative themes such as "training," "mentoring," and "coaching" consistently emerge in NVivo, explaining why technology adoption has a strong impact on digital strategy (Walangitan and Sagai 2023). In the diffusion of innovation theory (Scott, 2005), the Manado IKM Center acts as an agent of change that expands the innovation adoption process at the local MSME level as follows:

Furthermore, Cultural Product Characteristics that are significant to Digital Marketing Strategy are highly relevant to the identity of the Manado IKM Center as a center for developing regional culinary products. Qualitative narratives show that products produced by MSMEs, such as *cakalang fufu*, *sambal roa*, *rica-rica*, *woku*, and Manado's signature moist cakes, are promoted through local cultural touches, heritage elements, and stories about the origins of

the products. The themes of “Local Product Innovation” and “cultural stories” emphasize that the Manado IKM Center not only fosters technical aspects of production but also encourages each MSME to maintain its cultural identity as a point of differentiation. This is in line with the theory of the creative economy (Howkins, 2001) and cultural branding (D. B. Holt, 2004), and research findings on the effectiveness of cultural narratives in digital marketing (Walangitan et al. 2024).

Conversely, the insignificance of Digital Readiness and Cultural Creativity Process can be understood in the operational context of MSMEs under the guidance of the IKM Center. Although MSME actors have digital devices, many of them work as home-based businesses or individual micro-businesses (83% are sole proprietorships); therefore, the time, energy, and technical capacity to develop digital strategies independently remain limited. The actors of MSMEs realize that product creativity and digital preparedness do not necessarily lead to efficient digital strategies without direct expert support. This situation is consistent with Dynamic Capabilities Theory, which emphasizes that resources (devices, creativity) need to be configured into capabilities (content strategies and digital implementation) through external interventions such as Sentra IKM training.

Regarding Business Sustainability, the quantitative results show that Digital Marketing Performance is the only variable that significantly affects business sustainability. This is backed up by qualitative evidence: MSMEs with Sentra IKM observed that the stability in sales improved following the active use of social media, the establishment of a more regular posting schedule, and an enhancement of the content that they posted online. The Sentra IKM mentoring program, which includes product photography, copywriting, and digital branding, is also considered helpful for increasing online visibility and reputation. Walangitan supports the belief that MSME sustainability in the contemporary digital environment is built upon the performance of digital marketing (Walangitan, 2024, 2025; Walangitan et al., 2024).

Mediation analysis further emphasizes the important role of digital marketing in this model. Digital Technology Acceptance improves Business Sustainability through digital marketing strategies and performance (H9), whereas Digital Marketing Strategy influences sustainability through Digital Marketing Performance (H11). In qualitative histories, MSMEs refer to a fixed scheme of cause-effect: they learn technology in IKM Center training, apply content strategies, engage people, and sustain sales. This is a qualitative validation of the quantitative findings, which is in tandem with the Resource-Based View (RBV) (Schumpeter, 1934) and sustainable business models.

Overall, the integration of quantitative and qualitative data shows that the digital transformation of Manado's culinary MSMEs is not only the result of internal capabilities but also a product of the interaction between technology acceptance, product cultural characteristics, and the role of external assistance, particularly the Manado IKM Center, as the main catalyst for the digitalization of culinary MSMEs. These findings support the Institutional Theory and reinforce Walangitan's (2024, 2025) view that the digitalization of SMEs must be based on the local context, a human-centered approach, and continuous assistance from institutions such as the Manado IKM Center.

Theoretical Implications

This research is significant as a theoretical contribution because it demonstrates that it is not only technological readiness that brings the digital transformation of culture-based culinary MSMEs, but also strategic capabilities. The significant findings of Digital Technology Acceptance on Digital Marketing Strategy deepen the understanding of TAM (Hair et al., 2019) and Innovation Diffusion (Scott, 2005), where technology adoption has an impact only when facilitated by institutional support, such as the Manado IKM Center as a change agent. The influence of Cultural Product Characteristics → Digital Marketing Strategy expands the theory of the creative economy (Howkins, 2001) and cultural branding (D. B. Holt, 2004) by showing that cultural value becomes a strategic capability when combined with a digital content strategy. Conversely, the insignificance of Digital Readiness and Cultural Creativity Process reinforces dynamic capabilities theory (27), which states that resources only provide value when reconfigured into strategic capabilities. Overall, the findings confirm the role of Institutional Theory, that the digital transformation of MSMEs is the result of interactions between internal capabilities and external support, particularly the continuous assistance of the IKM Center.

Practical Implications

The implication of this study as practiced is that to enhance the competitiveness of culinary MSMEs in Manado, systematic interventions are necessary that aim to reinforce digital marketing strategies, and not just technological preparedness. The Manado IKM Center needs to expand its practice-based training programs, such as social media optimization, cultural storytelling, product photography, and engagement management, because digital marketing performance has been proven to be the only significant predictor of business sustainability. The results highlight the need to continue supporting the change in technology adoption into practical actions and the necessity of including local cultural narratives as an identity element of MSME digital branding. The government and supporting institutions are advised to provide a digital performance monitoring system and long-term coaching modules so that MSMEs can maintain consistent digital activities oriented towards sustainability.

Limitations and Further Research

This research is confined to culinary MSMEs managed by the Manado IKM Center; hence, the generalization of the findings to other sectors and regions with different institutional structures should be done with caution. The cross-sectional design also does not allow for studying the dynamics of digital capability formation over time, and insignificant findings on such variables as Digital Readiness and Cultural Creativity Process suggest that other mediating or moderating variables, such as digital literacy, entrepreneurial orientation, or the strength of institutional support, must be considered.

It is suggested that a longitudinal approach be adopted in future research, and the study should extend its scope in geography and sector to capture a better picture of the digital capability formation mechanisms to understand the sustainability of MSMEs. Further exploration of the role of supporting institutions, such as the IKM Center, is important to strengthen the understanding of how institutional support influences the effectiveness of digital transformation.

CONCLUSION

This study confirms that digital marketing strategies and digital marketing performance serve as central mechanisms for explaining the success of the digital transformation of culture-based culinary MSMEs in Manado, Indonesia. PLS-SEM analysis shows that technology acceptance and cultural product characteristics influence the transformation process only when mediated by digital marketing strategies, which results in improved digital marketing performance and business sustainability. These results broaden and enhance the theoretical frameworks of TAM (Hair et al., 2019), Innovation Diffusion (Scott, 2005), and the Resource-Based View (Schumpeter, 1934) by stating that technology- and culture-based resources need to be transformed into the operational forms of strategic capabilities to create value.

The irrelevance of the processes of digital readiness and cultural creativity supports the view of the Dynamic Capabilities perspective as the resources becoming useless unless the strategic recontextualization processes take place. The consistency of the qualitative analysis based on NVivo is in line with the quantitative results, whereby, according to MSME actors (most of them women who have been mentored by the Manado IKM Center), the primary determinants of transforming technology and cultural identity into successful digital strategies are training, mentoring, and empowering cultural narratives. Consequently, the institutional purpose of the Manado IKM Center to speed up the process of the positive effect of diffusion of innovation and boost digital capacities is affirmed in this work.

Overall, this study provides empirical and conceptual contributions that the sustainability of MSMEs in the digital era results from simultaneous interactions between internal capabilities, cultural resources, digital marketing strategies and institutional support. This study supports the idea that the digitalization of MSMEs cannot be regarded as a strictly technological process and, instead, a socio-technical process, which is contextual, multi-layered, and needs ongoing support to produce a competitive edge over the long term.

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APPENDIX

Appendix 1. Quantitative Research Instrument

Variable	Conceptual Definition	Operational Definition	Dimension	Indicator	Theory	Code	Questionnaire Item
X1 Digital Readiness	The availability and readiness of physical resources and basic	The level of access to devices and internet networks that	Infrastructure Readiness	Device access	DOI	DR1	I have digital devices (smartphone/laptop) that support my business activities.

X2 Digital Technology Acceptance	organizational capabilities to adopt digital technology.	support SME digital business activities.		Network access	DOI	DR2	I have adequate internet access to carry out business activities.
	Entrepreneurs' perceptions and acceptance of digital technology based on ease of use and usefulness for business.	The perceived ease of using digital applications and their benefits in increasing efficiency and competitiveness.	Perceived Ease of Use	Ease of learning and using applications	TAM	DTA1	I find it easy to learn digital applications for my business.
			Perceived Usefulness	Ease of use in daily operations	TAM	DTA2	Digital applications are easy to use in my daily business operations.
				Efficiency & business benefits	TAM	DTA3	Using digital technology makes my business promotion more efficient.
				Increased competitiveness	TAM	DTA4	I believe digital technology can increase my business competitiveness.
X3 Cultural Creativity Process	Creative activities by entrepreneurs in developing products based on local culture.	Frequency and regularity of entrepreneurs developing Manado culture-based products.	Creative Development Activities	Product development frequency	RBV, Creative Economy	CCP1	I routinely develop products inspired by Manado culture.
				Regular innovation	RBV, Creative Economy	CCP2	I often develop new products or variants in the past year.
X4 Cultural Product Characteristics	Manifestation of product characteristics that reflect local cultural values and uniqueness.	The level of cultural narrative, cultural differentiation, and symbolic cultural representation in SME products.	Cultural Narratives	Cultural storytelling	Cultural Branding	CPC1	My product contains stories or cultural values unique to Manado.
				Cultural narratives in promotion	Cultural Branding	CPC2	I include local cultural narratives in my product promotion.
			Differentiation	Product uniqueness	Creative Economy	CPC3	My product has unique characteristics that distinguish it from others.
				Cultural differentiation	RBV	CPC4	My product is different from similar products because of its local uniqueness.
M1 Digital Marketing Strategy	Strategies and activities carried out through digital channels	Level of customer interaction, digital	Customer Engagement	Digital customer interaction	Digital Marketing Funnel	DMS1	My social media receives high interaction from customers.

	to increase customer engagement and branding consistency.	promotional activity, and brand identity consistency through digital platforms.	Social Media Activity Branding Consistency	Digital promotional activities Visual & message consistency	Digital Marketing Funnel IMC	DMS2 DMS3	I actively use social media to promote my business. My business identity (logo, colors, language) is consistent across all digital channels.
M2 Digital Marketing Performance	The outcomes of digital marketing strategies in achieving business objectives.	Level of digital sales conversion, cultural value integration, and strengthening of cultural identity in digital promotions.	Sales Conversion	Digital sales performance	Digital Marketing Funnel	DMP1	My product sales increased after using digital platforms.
Y1 SME Performance	SME performance reflected through business growth, operational efficiency, and competitiveness.	SME owners' perceptions of improvements in cost efficiency, growth, and competitiveness in digital markets.	Overall SME Performance	Business performance	SME Metrics, BSC, RBV	DMP2	My business has experienced improved performance through customer and revenue growth, cost and time efficiency, and increased competitiveness in the digital market.
Y2 Business Sustainability	The business's ability to maintain long-term sustainability supported by stable financial performance.	Long-term profitability and stable cash flows that enable SMEs to survive in changing business environments.	Financial Sustainability	Profit Cash flow	Sustainable Business Model Sustainable Business Model	DMP3 DMP4	My business generates stable long-term profit. My business has stable cash flow.