“Does knowledge management and digital marketing improve the performance of local food home industries?”

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DOES KNOWLEDGE MANAGEMENT AND DIGITAL MARKETING IMPROVE THE PERFORMANCE OF LOCAL FOOD HOME INDUSTRIES?

Abstract

The purpose of this study is to analyze the roles of knowledge management and digital marketing in improving the performance of local food home industries (LFHIs), which are crucial to strengthening regional food security and community incomes in the Indonesian archipelago. However, LFHI performance remains hampered by limited digital adoption and integration of knowledge. The analysis was conducted in Maluku Province, particularly Central Maluku Regency, Tual City, and Southeast Maluku Regency. A total of 101 entrepreneurs in Central Maluku, 336 in Southeast Maluku, and 336 in Tual City were identified. Data were analyzed using SmartPLS-SEM. The coefficient of determination (R^2) was 0.523, indicating that collaboration networks, marketing capacity, consumer satisfaction, digital marketing, and knowledge management explain 52.3% of the variation in LFHI performance. In comparison, factors outside the model influence the remaining 47.7%. Model fit was confirmed by NFI = 0.852 and SRMR = 0.078, indicating an acceptable fit. The *t*-statistic results suggest that collaboration networks significantly influence digital marketing and knowledge management, whereas consumer satisfaction has no significant effect on either. Both digital marketing and knowledge management significantly enhance LFHI performance, whereas marketing capacity significantly influences digital marketing but not knowledge management. The results indicate that locally embedded collaboration and knowledge-sharing practices drive digital transformation. The study provides a practical development model to strengthen food-based MSMEs in archipelagic regions.

Keywords digitalization, marketing, performance, MSMEs, development

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INTRODUCTION

Micro, small, and medium enterprises (MSMEs), including home food industries (HFIs), account for a significant share of Indonesia's economy. With around 64.2 million units contributing approximately 61% of the national GDP, their economic relevance is undisputed. Yet, this aggregate contribution masks substantial regional disparities. In many peripheral and island regions, small enterprises continue to face structural barriers that limit their capacity to improve performance and expand market reach. Data from the Ministry of MSMEs for the period 2021–2025 further confirm that MSMEs consistently occupy a central position in the national economy (Hartarto, 2022). Maluku Province provides a clear example of these conditions. As an archipelagic region composed of dispersed small islands, economic activity operates under high transportation costs and limited physical connectivity. Although the region possesses distinctive local food resources such as sago and cassava (enbal), the presence of raw material poten-

tial does not automatically translate into competitive products or stable business growth. Geographic fragmentation shapes distribution channels, weakens market integration, and influences how entrepreneurs build partnerships and access information.

Digital access has improved in recent years, with internet penetration reaching roughly 75% in 2023. However, connectivity quality and digital capability vary considerably across islands. For small food enterprises, adopting digital tools therefore depends not only on infrastructure availability but also on existing social ties, informal collaboration networks, and locally embedded knowledge-sharing practices. Most existing models that explain MSME performance through digital marketing and knowledge management have been developed in urban or mainland settings. Whether these frameworks adequately describe the dynamics of enterprise in geographically fragmented, island-based economies remains uncertain. The limited attention to archipelagic contexts points to a broader gap in understanding how collaboration, knowledge processes, and digital engagement interact under conditions of spatial dispersion and logistical constraint (Afif et al., 2024; Lito et al., 2025; Utama et al., 2024).

1. LITERATURE REVIEW AND HYPOTHESES

Diversification of local food in the Maluku island groups can provide substantial support for sustainable food security. At the same time, the region's significant capture fisheries and coastal economic potential remain underutilized due to weaknesses in value chains and limited market access (Riry et al., 2023). Digital transformation refers to the application of digital technologies to generate substantial improvements in organizational performance, resulting in enhanced customer experiences, operational efficiency, and the emergence of new business models. Previous studies describe digital transformation as a disruptive process in which digital technologies enhance strategic responses (Feliciano-Cestero et al., 2023), prompting organizations to redefine their value-creation mechanisms as they navigate structural and organizational change (Hafeez et al., 2025; Vial, 2019). This perspective aligns with the view that digital transformation involves integrating digital technologies across all sectors of a business, fundamentally altering operational processes and modes of value delivery (Gebayew et al., 2018). Moreover, digital transformation has been identified as a critical factor in preventing organizational obsolescence in rapidly changing environments (Nerima & Ralyté, 2021). In this regard, digital transformation maturity models serve as strategic tools that help organizations identify strengths and weaknesses and select appropriate pathways for continuous improvement (Kırmızı & Kocaoglu, 2022).

Digital transformation also provides the technological foundation for enhancing knowledge management (Duan et al., 2024; Khilji et al., 2024; Schilirò, 2024), while effective knowledge management, in turn, is a critical enabler of successful digital transformation. Through the strategic use of digital tools, organizations can strengthen knowledge creation, sharing, storage, and absorption processes, thereby developing knowledge-based dynamic capabilities that foster innovation and competitive advantage. Recent systematic reviews and conceptual studies (2022–2025) demonstrate that knowledge management is positively associated with innovation performance, supply chain agility, and organizational resilience (Alkhresheh, 2025), especially when integrated with digital transformation initiatives. These findings are consistent with the SECI (socialization, externalization, combination, internalization) framework, which has been reaffirmed in the context of MSMEs and dynamic organizational environments (Durst et al., 2024; Hameed et al., 2025; Idrees et al., 2023; Kowshik et al., 2025).

The growth and dynamism of business organizations represent a critical determinant of national economic development (Islam & Wahab, 2021). In particular, small and medium-sized enterprises (SMEs) play a pivotal role in shaping a country's economic performance and social stability (Belmonte-Ureña et al., 2021; Gherghina et al., 2020; Panda et al., 2022; Vermeulen et al., 2018). Organizational performance, therefore, remains a primary concern in both academic and practical contexts (Hanaysha & Mehmood, 2022). The

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assessment of organizational performance is increasingly viewed as a multidimensional construct that integrates human, physical, and financial capital, extending beyond purely financial indicators (Abubakar et al., 2019; Lee et al., 2022). Scott and Manning (2022) indicate that organizations achieve superior performance when they operate in integrated, collaborative environments. In this regard, knowledge management can support digital marketing by providing critical insights into customer preferences, market trends, and consumer behavior, thereby enabling the development of more targeted and personalized marketing strategies.

According to the Central Statistics Agency of Maluku Province, actors within the micro and small industry processing sector in Maluku have utilized the Internet for a range of business activities, including product sales, procurement of raw materials, information searching, and access to financing. However, the intensity and distribution of this utilization remain uneven across different groups and locations (Maluku Central Statistics Agency, 2024). Studies on the sago and cassava supply chains in Indonesia have also identified the weak bargaining position of primary producers (Pribadi & Gautama, 2025; Trisia et al., 2021; Umayasari & Amantha, 2025), mainly attributable to information asymmetry and inefficiencies within existing networks. These challenges may be addressed through improved knowledge-sharing mechanisms and the development of more direct marketing channels that connect producers and consumers. Such findings provide an empirical foundation for designing a model that integrates knowledge management with digital platforms to shorten supply chains and enrich market information for LFHIs (Prabaningtias et al., 2024; Trisia et al., 2021).

Beyond theoretical and quantitative considerations, Maluku represents a distinctive empirical setting for this study. As an archipelagic province characterized by dispersed islands, limited inter-island connectivity, and a strong dependence on traditional commodities such as sago and cassava (enbal), LFHIs operate under structural conditions that differ considerably from those encountered by MSMEs in mainland or urban environments. Production and marketing activities are embedded within close-knit kinship systems, women-led household enterprises, and community-based modes of knowledge transmission. In this context, business decisions are shaped not only by economic rationality but also by social obligations, reciprocal relationships, and deeply rooted cultural values (Schrempf-Stirling et al., 2022). These contextual features create unique organizational dynamics in which collaboration networks, informal knowledge-sharing practices, and communal trust may exert a more decisive influence than formal institutional structures. Consequently, understanding the interaction between knowledge management and digital marketing is not merely a technological or managerial issue, but also a socio-cultural and spatial phenomenon. By grounding the analysis in the lived experiences of local food producers, this study introduces a context-specific perspective that extends beyond generic MSME and digital transformation frameworks, generating insights that are relevant to other archipelagic and peripheral regions facing similar structural challenges.

While much of the existing literature on MSMEs and digital transformation has focused on urban or mainland contexts, scholarly attention has been limited to the structural particularities of archipelagic regions, such as the Maluku Islands. Many prevailing models implicitly assume the availability of reliable infrastructure, stable digital connectivity, and formal institutional support conditions that are often absent in dispersed island economies. This study addresses this critical gap by developing and empirically validating a context-sensitive model that integrates informal social networks, community-based knowledge systems, and accessible digital tools within a comprehensive development framework tailored to LFHIs. By doing so, this paper makes an original contribution to the literature on sustainable regional development by proposing a model that is both scalable and deeply rooted in local socio-spatial realities, with potential applicability to other small island and peripheral regions.

Based on the contextual conditions and empirical evidence outlined above, this study aims to develop a model that integrates knowledge management processes with a digital marketing architecture to enhance LFHI's performance in the

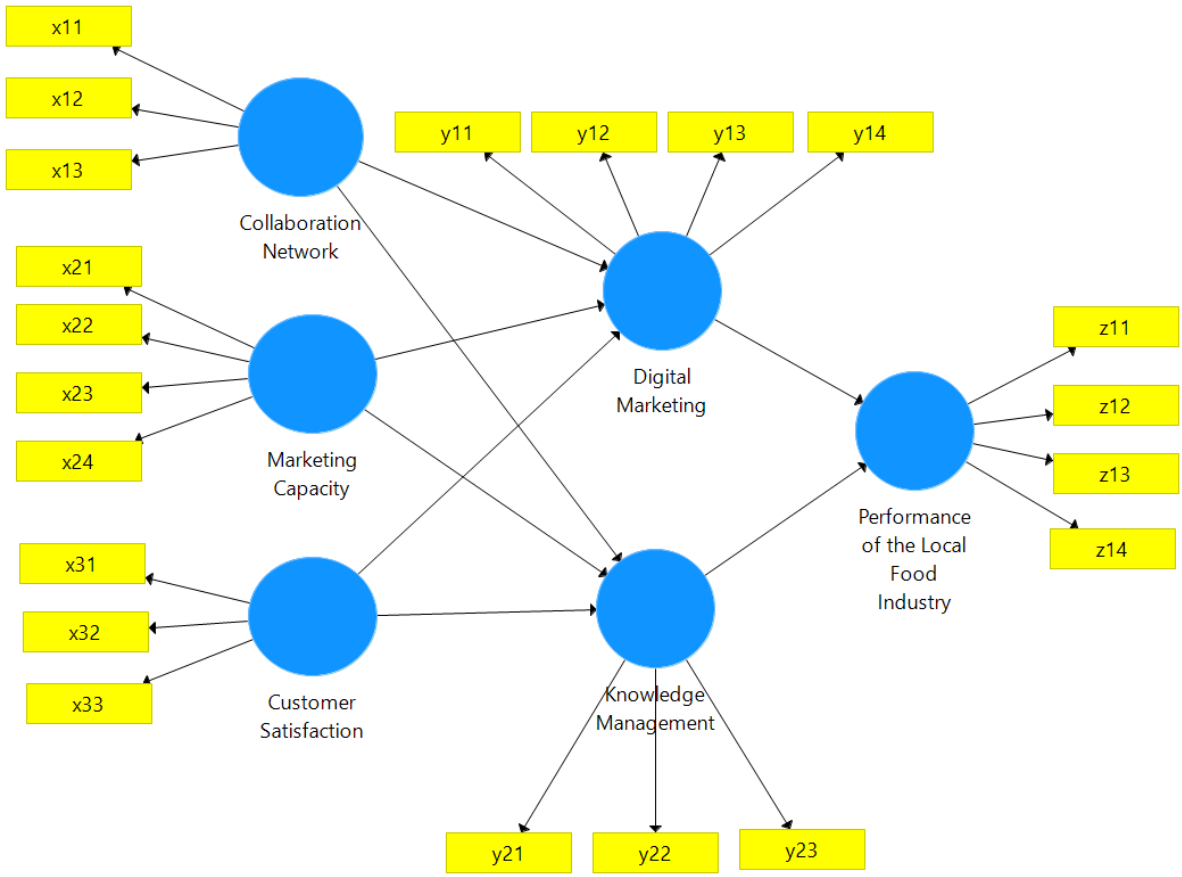

Figure 1. Conceptual framework

Maluku region. The primary theoretical contribution lies in advancing a knowledge-based dynamic capability framework within an archipelagic setting. From a practical perspective, this study offers an implementation roadmap encompassing iterative stages, the roles of local governments, communities, and facilitating institutions, and measurable outcome indicators that may serve as a transferable reference for other archipelagic regions in Indonesia and beyond (Kowshik et al., 2025; Sharabati et al., 2024).

Accordingly, the objective of this study is to analyze the development of knowledge management and digital marketing as strategic levers for improving LFHIs' performance.

Based on the proposed research framework (Figure 1), the following hypotheses are formulated:

H1: *Collaboration networks have a positive effect on digital marketing.*

H2: *Marketing capacity has a positive effect on digital marketing.*

H3: *Consumer satisfaction has a positive effect on digital marketing.*

H4: *Collaboration networks have a positive effect on knowledge management.*

H5: *Marketing capacity has a positive effect on knowledge management.*

H6: *Consumer satisfaction has a positive effect on knowledge management.*

H7: *Digital marketing has a positive effect on the performance of local food home industries.*

H8: *Knowledge management has a positive effect on the performance of local food home industries.*

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2. METHODS

The analysis was conducted in Central Maluku Regency, Tual City, and Southeast Maluku Regency. The research location was selected using purposive sampling because all three locations have well-developed and highly sustainable local food home industries (LFHIs). The local foods developed by the home industries are sago and cassava (enbal). Both commodities are processed into value-added products and have high sales value through both manual and digital sales channels. Research data were collected through interviews with 120 LFHIs representatives, using a structured questionnaire to obtain information on the development of the LFHIs. Data on collaboration networks, marketing capacity, consumer satisfaction with digital marketing, and knowledge management were collected to enhance LFHIs' performance. Sampling used the Slovin formula with a population of 101 entrepreneurs in Central Maluku Regency, 336 entrepreneurs in Southeast Maluku Regency, and 336 entrepreneurs in Tual City, with 10% and 10.6% margins of error, respectively. The LFHIs sample in Central Maluku Regency consisted of 50 respondents, while those in Southeast Maluku Regency and Tual City comprised 70 respondents.

This study used a descriptive, observational design, employing triangulation that combined structured interviews, in-depth interviews, and observations. We selected local food entrepreneurs according to the following criteria: 1) are entrepreneurs, 2) have used social media in their business communications, and 3) are willing to be research subjects. Qualitative analysis was carried out by reviewing the results of interviews and FGDs with stakeholders, then elaborating on the quantitative analysis. Quantitative analysis is conducted using an econometric model to test collaboration networks, marketing capacity, consumer satisfaction with digital marketing, and knowledge management to improve LFHI performance, using SEM-PLS 4.0. The equation model is shown as follows.

1. The influence of X on Y_1 (Digital marketing):

$$Y_1 = \beta_{10} + \beta_{11}X_1 + \beta_{12}X_2 + \beta_{13}X_3 + e_1. \quad (1)$$

2. The influence of X on Y_2 (Knowledge management):

$$Y_2 = \beta_{20} + \beta_{21}X_1 + \beta_{22}X_2 + \beta_{23}X_3 + e_2. \quad (2)$$

3. The influence of Y_1 and Y_2 on Z (Performance of LFHI):

$$Z = \beta_{30} + \beta_{31}Y_1 + \beta_{32}Y_2 + e_3. \quad (3)$$

We employed a 5-point Likert scale (not good, less good, sufficient, good, very good). Research variables and indicators that influence LFHI performance included collaboration networks (X_1), marketing capability (X_2), consumer satisfaction (X_3), digital marketing (Y_1), knowledge management (Y_2), and LFHI performance (Z_1) with each indicator including resource mobilization (X_{11}), knowledge exchange (X_{12}), product development (X_{21}), product differentiation (X_{22}), market analysis (X_{23}), customer service (X_{24}), product quality (X_{31}), service quality (X_{32}), consumer loyalty (X_{33}), accessibility (Y_{11}), interactivity (Y_{12}), informative (Y_{14}), product knowledge and production processes (Y_{21}), use of social media (Y_{22}), use of other digital technologies (Y_{23}), increased turnover/sales (Z_{11}), profitability (Z_{12}), production efficiency (Z_{13}) and market reach and expansion (Z_{14}) (Figure 1).

3. RESULTS AND DISCUSSION

The local food home industries (LFHIs) are a crucial pillar of the regional economy. In addition to contributing to the economy, this sphere also helps preserve local culture and wisdom. However, with technological advancements and increasingly competitive markets, businesses must adapt to stay competitive. One approach is to develop knowledge management and digital marketing capabilities. In an era of globalization and rapid technological advancement, LFHIs face significant challenges in competition and innovation. In this context, implementing a knowledge management development model and digitalizing marketing are crucial to improving the industry's performance.

Recent empirical evidence suggests that digital marketing (online advertising, social media, SEO, and customer engagement) can improve small business performance by expanding markets, refining segmentation, and acquiring consumer behavior data. In Indonesia, 2023–2024

research highlighted the importance of digital capabilities, business literacy, and appropriate e-commerce adoption strategies (information and technology/e-commerce training emerged as a key strategy), aligning with the government's target to expand MSME digitalization. Therefore, strengthening digital marketing is not just a sales channel but also a market-learning tool that enriches a business's knowledge base (Bening et al., 2023; Sharabati et al., 2024). With the rapid development of marketing and technology, the business ecosystem has become highly dynamic, with intense competition and innovation. The ease of establishing and running a business opens up significant opportunities for companies and entrepreneurs. Therefore, valuable and sustainable strategies are needed to ensure the long-term continuity of business activities (Hartawan et al., 2021). This phenomenon underscores the importance of continuous adaptation and innovation. Companies that can formulate and implement strategies that are not only responsive to current changes but also forward-looking will have a better chance of surviving and thriving in a competitive business landscape. The results of this study indicate that local food businesses still utilize e-commerce at a low level (score range 30–60%). This finding suggests that companies have not fully integrated e-commerce as a primary marketing strategy for their products.

Product sales via e-commerce reached 59.17% (Figure 2). This study suggests that some entrepreneurs are familiar with and utilize e-commerce platforms such as Tokopedia, Shopee, or Bukalapak. However, most respondents (40.83%) disagreed with selling products through these platforms. Product marketing is primarily conducted on traditional social media platforms. In fact, e-commerce has been shown to significantly expand market reach while reducing constraints imposed by geographical distance (Laudon & Traver, 2017). The 48.33% increase in e-commerce feature utilization shows that this indicator received the lowest score, with 51.67% of respondents stating they did not use features provided by e-commerce platforms, such as vouchers, discounts, internal advertising services, or product recommendation systems. This finding could be due to a lack of digital literacy and limited knowledge among business owners regarding the strategic use of these features. However, these features are highly influential in increasing product visibility and attracting consumer interest (Chaffey & Ellis-Chadwick, 2016). Managing customer reviews and ratings was 31.67%, indicating that most businesses (68.33%) do not manage customer reviews and ratings effectively. This result suggests that companies have not yet fully recognized the significance of review management in shaping consumer trust.

Based on data tabulation and analysis, digital marketing and knowledge management had a real impact on improving LFHIs' performance, especially sales and income. Digital marketing integrated with market data and knowledge will produce a more targeted marketing strategy. Meanwhile, Nonaka and Takeuchi (1995) stated that knowledge is a strategic asset in creating value and sustainable innovation. Field findings support this, where LFHIs that maintain internal documentation are more open to sharing information and actively seek new knowledge, tending to use digital marketing more actively and creatively, which directly impacts sales growth and product competitiveness. Implementing knowledge management and digital marketing simultaneously creates powerful collaboration. When knowledge is well managed, information about marketing trends and customer needs is easily accessible to all industry members. This fact enables companies to respond to market changes and implement marketing strategies based on valid data and insights. Businesses can extract relevant consumer data by leveraging technologies such as customer relationship management and analytics tools. This information can then enhance the customer experience and add value to products, thereby improving consumer satisfaction and the overall performance of LFHIs.

Knowledge management is a systematic process for creating, distributing, and managing knowledge within an organization. Knowledge management helps businesses optimize resources, share experiences, and utilize the latest information on market trends and consumer needs in the local food home industry. With practical knowledge management, businesses can make better, faster decisions, improving the quality of their products and services. Knowledge management approaches

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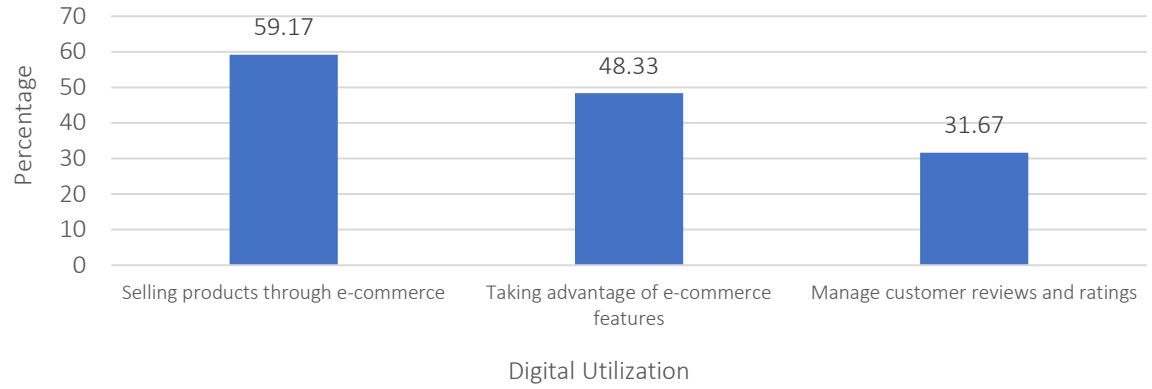

Figure 2. Key aspects of e-commerce and marketplace utilization in local food home industries

can be implemented through various means, including training and workshops, developing community networks, and utilizing digital platforms to share information. This finding will create a collaborative ecosystem among businesses, enabling them to learn from each other and innovate.

Documentation of recipes and product manufacturing methods falls into the low category with a percentage of 46.3%. This fact suggests that most LFHIs lack systematic written documentation. Existing knowledge is still oral and passed down from generation to generation, making it vulnerable to loss when the workforce changes. The ease with which new employees learn the production process through guides/documentation resulted in a score of 49.5%. This value is also considered low, indicating that written documents or work manuals do not adequately support the process of transferring knowledge to new workers. Instead, it relies more on direct practice (learning by doing). This condition leads to inefficiency in knowledge transfer and can reduce business productivity. Regarding customer feedback on product quality, the score was 54.4% (sufficient).

These results suggest that some LFHIs have started collecting customer feedback, although not consistently. Customer feedback is a crucial external source of knowledge that serves as the basis for product development, innovation, and digital marketing strategies. Documentation of production problems and their resolution reached 69.3% (a reasonably good level). This fact demonstrates some housewives' awareness of recording production obstacles, which can serve as a reference in subsequent processes. This effort is crucial for supporting knowledge sharing among family members or the workforce and preventing the same mistakes from recurring.

The data processing results show that the indicators of knowing the main competitors in the local market and monitoring the latest market trends obtained the highest scores at 76.8% and 75.2%, respectively. This result indicates that LFHIs are relatively sensitive to the dynamics of competition and market developments, thus able to adapt products to local market needs. However, recording customer preferences or special needs achieved only 62.4%, indicating that documentation of customer information remains low. This condition suggests that most business actors lack a robust system for managing customer data, even though this information is essential for developing effective marketing strategies and enhancing product quality. Furthermore, the indicator of knowing the leading market segment of the product obtained a score of 65.2%, indicating that most LFHIs have a sufficient understanding of the primary consumer targets; however, this understanding has not been detailed or systematic. This point could limit LFHIs' ability to develop a more targeted digital marketing strategy (Figure 3).

The study results on knowledge sharing indicate that most LFHIs' actors are still in the sufficient category, with a tendency to share information more within the family circle than outside the community. The highest score was obtained for the indicator of intergenerational knowledge within the family, structured in a manner, at 67.7%, followed by forums or special times for sharing experiences at 58.5%. This knowledge transfer within the fam-

ily is still ongoing, although not optimal. On the other hand, the indicators of sharing knowledge with other LFHIs in the community and of actively seeking information from outside LFHIs obtained scores of 52.3% and 54.8%, respectively, indicating they are in the sufficient category. This condition suggests that business actors are still less open to external collaboration or initiatives for acquiring new knowledge, such as training, seminars, and internet use.

Regarding social media usage, the average score was 52.83%, placing it in the moderate category, indicating business owners' use of social media remains suboptimal. Most respondents (58.2%) stated they have social media accounts to promote their products. Although some respondents already use social media, the number remains limited, indicating that business owners' awareness of its importance as a digital marketing tool is not yet widespread. Social media has been widely recognized as an effective and affordable way to reach broader markets.

It was found that 54.6% of businesses regularly upload product content in the form of photos or videos. This situation demonstrates a lack of consistency in building brand image through social media. Consistency in content delivery has a significant impact on customer engagement. Research indicates that 52.7% of businesses engage with customers through digital channels. They actively interact with customers through social media. This initiative could erode customer trust and loyalty, as digital interactions are crucial to improving customer relationship management. The lowest score was for using paid advertising features on social media, at 45.8%, due to limited promotional budgets, a lack of knowledge about digital advertising strategies, or a lack of confidence in the effectiveness of paid advertising. Paid social media advertising, such as Facebook or Instagram ads, is highly effective for reaching specific target markets but requires a strong understanding of digital marketing strategies (Tuten & Solomon, 2018).

The empirical findings of this study are further reinforced by field observations and in-depth interviews conducted with local food home industry actors in Central Maluku, Tual, and Southeast Maluku. In practice, digital marketing activities among these entrepreneurs are largely informal, relying heavily on personal WhatsApp networks, Facebook groups, and community-based connections rather than structured e-commerce platforms. Several respondents reported that product promotion and sales frequently occur through kinship ties, church or village-based networks, and recommendations among neighbors or extended families living outside the islands. This

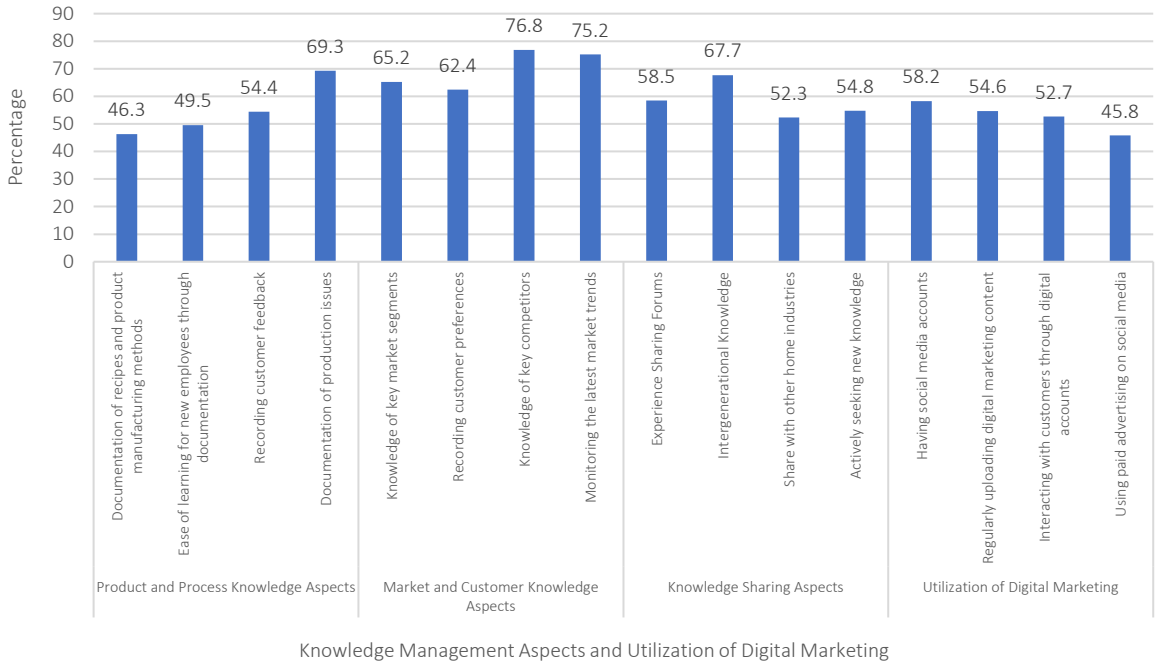

Figure 3. Dimensions of knowledge management and digital marketing practices among LFHIs

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condition explains why collaboration networks have a strong and significant influence on both digital marketing and knowledge management in the model. These networks, in reality, are daily social infrastructures that facilitate the exchange of production techniques, information about raw material availability, and access to urban or inter-island markets. Thus, the quantitative relationships identified in the SEM-PLS analysis represent not merely statistical correlations, but reflections of deeply embedded social and economic practices in the local food system.

Digital marketing encompasses all marketing that uses electronic devices or the Internet. Businesses communicate with their target and compelling customers through digital channels, including search engines, social media, email, and websites. Consumers' desire to use digital media and their potential interest in embracing the digital age have driven many companies to utilize digital marketing to reach their target markets (Krings et al., 2021). Digital marketing is not only an effective force for the growth of a company or economic entity, but also the future of all traditional marketing efforts within economic entities. Digital communication is more consistent, faster, more measurable, and more effective, and digital marketing offers numerous benefits to both consumers and marketers (Cartwright et al., 2022).

Digital marketing has narrowed the gap between customers and product and service marketers, leading to increased purchasing power and significant changes in customer behavior. Today, consumers can easily find information online before purchasing a product. They have access to suppliers worldwide and to the latest market prices at the time of purchase (Dwivedi et al., 2021). Knowledge is an intangible asset and an essential source of competitive advantage for individuals and organizations, as it is challenging to imitate. Previous studies have shown that knowledge from various stakeholders, such as suppliers, consumers, and research institutions, is essential for organizations to produce green innovations (Cui et al., 2020; Tseng et al., 2019).

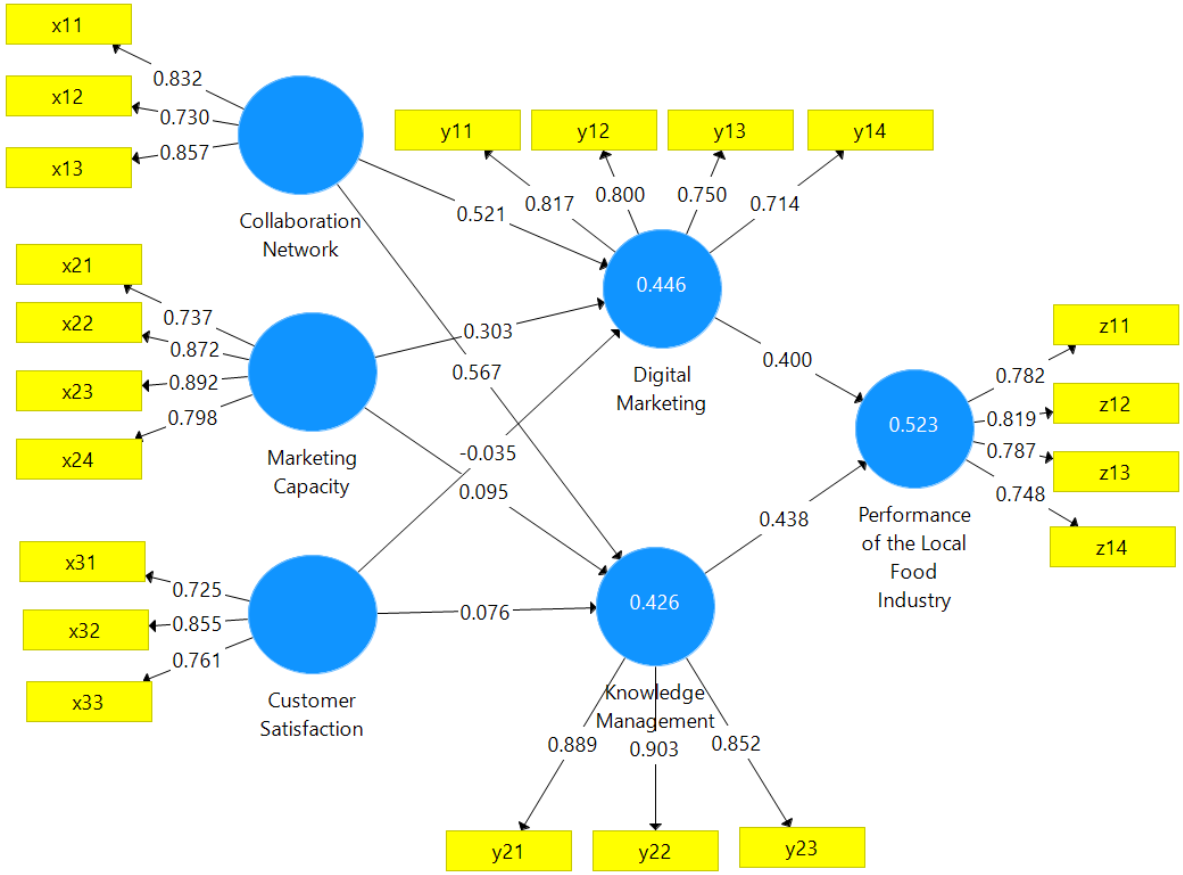

Figure 4. Measurement and structural model (loadings, path coefficients, and R^2 values)

Organizations possess numerous resources and assets to accomplish their missions and goals. Some of these resources and assets are highly valuable and strategic, playing a critical role in achieving competitive advantage. Knowledge is one such resource and asset for all organizations (Yu et al., 2022). The measurement and structural model is shown in Figure 4.

The coefficient of determination (R^2) (Table 1) is expected to be between 0 and 1, which is a way to assess how much the exogenous construct can explain the endogenous construct. The analysis results show that the R^2 is in the moderate range, at 52.3% (Ghozali & Hengky, 2014; Sarstedt et al., 2022). Meanwhile, adjusted R^2 is the R^2 value corrected for the standard error of 0.515. The adjusted R^2 value provides a stronger picture than R^2 in assessing the ability of an exogenous construct to explain the endogenous construct. The R^2 value falls in the moderate range, indicating that 52.3% of the LFHI performance variables are influenced by collaboration networks, marketing capacity, consumer satisfaction, digital marketing, and knowledge management. In comparison, the remaining 47.7% are influenced by other factors not included in the research model.

Table 1. Coefficient of determination (R^2) and adjusted R^2 for each endogenous variable

Description	R^2	R^2 Adjusted
Digital Marketing	0.446	0.432
Knowledge Management	0.426	0.411
Performance of the LFHI	0.523	0.515

F2 values measure the effect size or F2 of a latent predictor (exogenous construct) on the endogenous construct in the model (Wong, 2013). This metric provides an overview of the contribution or impact of a predictor variable to the R2 of the predicted variable when the predictor is removed from the model. The F2 value is divided into three categories: 0.02 indicates a small effect, 0.15 indicates a medium effect, and 0.35 indicates a significant effect. Values less than 0.02 can be ignored or considered to have no effect (Sarstedt et al., 2022). Table 2 shows the F2-value, which indicates a significant effect (F2 > 0.35) and indicates that X1 influences Y2. For moderate effects, namely with F2 between 0.15 and 0.35, the influence of X1 on Y1, the influence of Y1 on Z, and the influence of Y2 on Z. While the influence of X2 on Y1 is a small effect because the F2 value is in the range of 0.02 to 0.15. Meanwhile, the ignored effects are X3 on Y1 and Y2, and X2 on Y2, because the value 0.02 is not significant or not worth considering.

The model is measured using reliability and validity analysis. Reliability analysis uses Cronbach's Alpha. The minimum Cronbach's Alpha value is 0.7, while the ideal value is 0.8 or 0.9. In addition to Cronbach's Alpha, ρc (composite reliability) is also used and interpreted similarly. Each latent variable must explain at least 50% of the variance in its indicators. Therefore, the absolute correlation between the latent variable and its indicator must be > 0.7 (the absolute value of the outer standard loadings). Cronbach's Alpha and composite reliability values are shown in Table 3. Cronbach's Alpha measures the lower limit of a construct's reliability, while composite reliability measures the actual reliability of a construct. Composite reliability is considered superior for estimating a construct's internal consistency. The rule of thumb applies to composite reliability values greater than 0.7 and to Cronbach's Alpha values greater than 0.7 (Ghozali, 2021). It can be seen that all Cronbach's Alpha and construct reliability values are > 0.7. Discriminant validity was measured using the criteria proposed by Fornell–Larcker criterion. The Fornell–Larcker postulate states that a latent variable shares variance with its underlying indicator rather than with other latent variables. Statistically, the AVE value for each latent variable must be greater than the highest R2 value for the other latent variables.

Table 2. Effect size (F^2) of the exogenous variables on endogenous constructs

Description	Digital Marketing	Knowledge Management	Performance of the Local Food Industry
Collaboration Network	0.348	0.397	
Customer Satisfaction	0.001	0.006	
Digital Marketing			0.256
Knowledge Management			0.306
Marketing Capacity	0.122	0.011	

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Table 3. Measurement model evaluation: Reliability and convergent validity

Description	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Collaboration Network	0.733	0.748	0.849	0.653
Customer Satisfaction	0.786	0.757	0.825	0.612
Digital Marketing	0.781	0.814	0.854	0.595
Knowledge Management	0.856	0.859	0.912	0.777
Marketing Capacity	0.845	0.859	0.896	0.684
Performance of the Local Food Industry	0.792	0.794	0.865	0.615

Table 4. Discriminant validity based on the Fornell–Larcker criterion

Description	Digital Marketing	Collaboration Network	Marketing Capacity	Customer Satisfaction	Performance of the Local Food Industry	Knowledge Management
Collaboration Network	0.808					
Customer Satisfaction	0.529	0.782				
Digital Marketing	0.609	0.393	0.771			
Knowledge Management	0.640	0.423	0.489	0.881		
Marketing Capacity	0.354	0.504	0.470	0.333	0.827	
Performance of the LFHI	0.835	0.647	0.614	0.633	0.458	0.784

Table 3 shows the AVE root value for each construct or variable. The bold numbers indicate the AVE root value. The AVE root value is then compared with the model's R^2 value. The R^2 value is 0.523. Table 4 shows that the AVE root score for each variable is greater than the R^2 value. Thus, all variables are declared valid and can be used for further testing. The R^2 value falls in the moderate range, indicating that collaboration networks, marketing capacity, consumer satisfaction, digital marketing, and knowledge management explain 52.3% of the LFHI performance variables. Meanwhile, the remaining 47.7% is influenced by other factors not included in the research model.

From a managerial perspective, the moderate R^2 value (0.523) suggests that improvements in local food home industry performance are not determined solely by technological adoption, but by a combination of relational, cognitive, and contextual factors. Business performance is powerfully shaped by how effectively entrepreneurs mobilize their social networks, organize collective knowledge, and translate community-based experiences into structured learning processes. For local decision-makers, cooperatives, and extension agencies, this means that interventions should go beyond providing digital tools or training in platform usage. Instead, capacity-building programs must be designed to strengthen trust-based collaboration among producers, support systematic documentation of traditional knowledge (such as recipes and processing techniques), and formalize community learning spaces. Only through this integrative approach can digital marketing act not simply as a sales channel, but as a strategic mechanism for knowledge accumulation, product innovation, and long-term business resilience in remote and island-based economies.

At the policy level, the findings suggest that local development planning should prioritize collaborative, community-based interventions over purely technology-driven programs. Government support for LFHIs should not be limited to providing digital infrastructure alone; it must also include facilitating producer networks, village-based training hubs, and inter-island knowledge exchange platforms. Integrating these elements into regional development plans (RPJMD) can accelerate inclusive and sustainable economic growth, particularly for women-led household enterprises and remote communities.

The goodness of fit criterion test refers to the Normed Fit Index (NFI) and Standardized Root Mean Square Residual (SRMR) values. SRMR is an index that measures the average difference between the observed and the model-implied correlation matrices. A low SRMR value indicates

a good model fit. The NFI measures model fit by comparing it to the null model, which assumes no relationship between variables. An NFI value closer to 1 indicates a better model fit. The minimum criteria for determining the fit of a structural model in PLS-SEM are NFI > 0.8 and SRMR < 0.08 (Hair et al., 2019). The results of the model fit test using SmartPLS-SEM show that the NFI and SRMR values met the criteria, as shown in Table 5.

The structural model analysis in this study was continued using the bootstrapping technique in SmartPLS (ver. 3.0) with a significance level of 0.05. A one-tailed test was used to determine the direction of the relationship between variables. Using a one-tailed hypothesis test, the *T*-statistic value must be above 1.64 (Jogiyanto, 2011).

Table 5. Model fit indices of the SEM-PLS analysis

Description	Estimated Model
Standardized Root Mean Square Residual (SRMR)	0.078
Normed Fit Index (NFI)	0.852

Table 6 shows that collaborative networks have a positive influence on digital marketing, collaborative networks have a positive influence on knowledge management, consumer satisfaction with knowledge management, digital marketing has a positive influence on the performance of LFHI, knowledge management has a positive influence on the performance of LFHI, and marketing capacity has a positive influence on digital marketing. Marketing capacity positively influences knowledge management. Meanwhile, consumer satisfaction has a negative and significant influence on digital marketing.

Collaborative networks have a significant influence on digital marketing, with a significance value of 4.594 > 1.64. This finding suggests that the stronger the LFHI's cooperative network, the more effective and expansive its digital marketing reach will be. This network is created through partnerships with influencers, collaborations with other businesses, or participation in online communities. Increased collaboration opens up more channels and opportunities for digital promotion.

Collaboration networks significantly influence knowledge management, with a significance value of 6.340 > 1.64, indicating that a strong collaboration network facilitates the accumulation and dissemination of better knowledge management. Through collaboration, LFHIs can share information, best practices, and experiences, all of which are valuable forms of knowledge. This knowledge is invaluable for improving future products and services. Digital marketing has a significant impact on LFHI's performance, with a *p*-value of 6.177 > 1.64, indicating that it effectively improves performance. Digital marketing can reach a broader market, increase sales, build brand awareness, reduce operational costs, and contribute to overall business performance.

Knowledge management has a significant impact on LFHI performance, with a significance value of 6.360 > 1.64, indicating that effective knowledge management will positively influence LFHI performance. The LFHI systematically collects, stores, and uses knowledge (about production, marketing, or consumers) to make better decisions, optimize processes, and innovate, thereby impacting overall business performance. This evidence is supported by Hanaysha and Mehmood (2022), who state that knowledge management plays a vital role in influencing organizational performance.

Table 6. Path coefficients and significance levels from bootstrapping analysis

Description	Original Sample (O)	Sample mean (M)	Standard deviation (STDEV)	T-statistics (O/STDEV)	*P*-values
Collaboration Network → Digital Marketing	0.521	0.535	0.113	4.594	0.000
Collaboration Network → Knowledge Management	0.567	0.558	0.089	6.340	0.000
Customer Satisfaction → Digital Marketing	–0.035	–0.030	0.087	0.404	0.686
Customer Satisfaction → Knowledge Management	0.076	0.081	0.096	0.787	0.432
Digital Marketing → Performance of the Local Food Industry	0.400	0.406	0.065	6.177	0.000
Knowledge Management → Performance of the Local Food Industry	0.438	0.436	0.069	6.360	0.000
Marketing Capacity → Digital Marketing	0.303	0.290	0.109	2.775	0.006
Marketing Capacity → Knowledge Management	0.095	0.109	0.101	0.938	0.349

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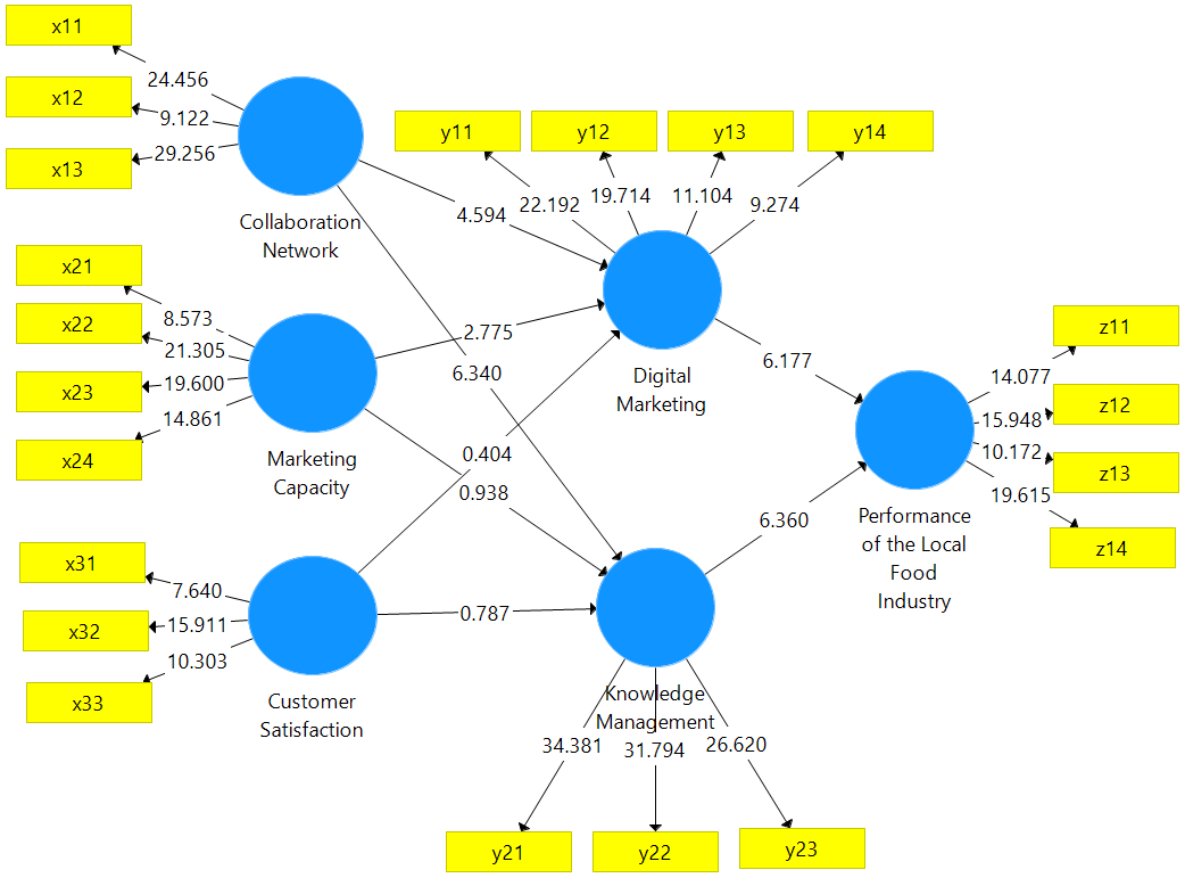

Figure 5. Bootstrapping results showing t-values between constructs (inner model)

Marketing capacity significantly influences digital marketing, with a significance value of 2.775, which is greater than 1.64, indicating that the higher the LFHIs' marketing capacity (e.g., skills, resources, and strategies), the better their digital marketing. Strong marketing capacity is a prerequisite for designing and implementing successful digital campaigns.

Marketing capacity does not significantly affect knowledge management, with a *p*-value of 0.938 < 1.64, indicating that it has not contributed considerably to knowledge management. The marketing team must enhance its skills in collecting and analyzing market data and consumer behavior effectively, as these are key components of knowledge management. If done well, knowledge can be used to improve future marketing strategies. This condition also applies to consumer satisfaction, which does not affect knowledge management because the significance value is 0.787 <1.64. Marketing capacity and knowledge management are inseparable. Both are essential elements that support each other to achieve business success in a constantly changing environment. The LFHIs lack a strong marketing capacity to analyze the market, understand customer needs, and adapt to environmental changes.

Consumer satisfaction has a negative and insignificant effect on digital marketing, with a significance value of 0.404 < 1.64, indicating that consumers have not fully utilized digital platforms for purchasing local food products. Consumers are aware that local food products are marketed through digital media, including Facebook, Instagram, Tokopedia, Shopee, and other marketplaces; however, not all consumers utilize these platforms to make purchases. The adverse effect indicates that an increase in the predictor variable (digital marketing) is associated with a decrease in the criterion variable (consumer satisfaction) due to a lack of understanding of the target market, unattractive promotions, or failure to meet high consumer expectations, driven by widespread access to information. The results of this study sup-

ported Marpaung and Fadillah (2024), who suggest that digital marketing negatively and partially significantly affects consumer satisfaction at Coffee Coustik Kisaran.

Bootstrapping is a process for assessing the significance or probability of direct, indirect, and total effects (Figure 5). Furthermore, bootstrapping can also evaluate the importance of other values, including R^2 and adjusted R^2, F^2, outer loadings, and outer weights. In the complete PLS–SEM bootstrapping method, all values that can be analyzed in partial least squares analysis are bootstrapped to generate probability values. Path coefficients between constructs are used to assess the significance and strength of their relationships. Path coefficients range from –1 to +1. The closer to +1, the stronger the relationship between the two constructs. A relationship closer to –1 indicates a negative relationship (Sarstedt et al., 2022). This finding confirms the significance and robustness of the relationships among the model's constructs. The values of R^2 and adjusted R^2 further indicate that the proposed model has sufficient explanatory power for the endogenous variables. In addition, the magnitude of the path coefficients demonstrates the direction and strength of the relationships, with stronger coefficients indicating more influential effects between constructs. Overall, these findings support the proposed model and are consistent with theoretical expectations and previous empirical studies (Hameed et al., 2025).

CONCLUSION

This study emphasizes the role of knowledge management and digital marketing in improving LFHIs' performance in an increasingly competitive environment. Strengthening structured knowledge systems and integrating digital marketing are essential for enhancing efficiency and long-term competitiveness. The findings indicate that collaboration networks significantly support both knowledge management and digital marketing, whereas consumer satisfaction does not. Both knowledge management and digital marketing positively influence business performance, whereas marketing capacity affects only digital marketing.

In the context of Maluku, digital transformation cannot follow a uniform national approach. Geographic fragmentation, infrastructure constraints, and strong socio-cultural systems require localized and culturally sensitive strategies. Hybrid approaches that combine traditional knowledge with accessible digital tools (supported by governments, NGOs, and universities through facilitation and continuous mentoring) are more appropriate, particularly for women-led home industries.

In the long term, such approaches contribute not only to improved business performance but also to food sovereignty, regional resilience, and the preservation of local knowledge. However, this study is limited by the low adoption of digital marketing, the persistence of traditional practices, challenges in data collection across dispersed areas, and limited institutional support. Future research should focus on strengthening digital capabilities, expanding market access, and supporting rural value chain development.

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