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Google Maps Location Marking for MSMEs to Enhance Digital Visibility of Rural Businesses in Gebang Village

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ABSTRACT

Purpose: This study evaluates a community service program that created Google Maps listings for Micro, Small, And Medium Enterprises (MSMEs) in Gebang Village, Teluk Pandan, via the KKN program of Universitas Lampung. The initiative aimed to enhance digital visibility, market access, and online presence for rural MSMEs, while also encouraging local entrepreneurs to adopt basic digital transformation practices in their business operations.
Methodology: A qualitative descriptive approach was used, including field observation, MSME identification, GPS coordinate collection, Google Maps profile creation, owner training, and post-program evaluation. Data were collected through direct observation, documentation, and literature on MSME digitalization and location-based marketing.
Results: All targeted MSMEs were successfully listed on Google Maps with complete profiles. Owners acquired basic skills in managing digital business profiles, and the program was implemented at no cost to participants. The intervention also increased awareness among MSME owners regarding the importance of online visibility for customer acquisition and business competitiveness.
Conclusions: Google Maps listing is an effective, low-cost intervention that improves MSME visibility, accessibility, and digital marketing capabilities, particularly in rural contexts where digital adoption remains limited.
Limitations: The study focused on one village and one implementation cycle, which may limit generalizability to other regions with different socio-economic characteristics.
Contribution: Findings demonstrate that geolocation-based tools can bridge the rural digital divide and support student-led community service initiatives, contributing to sustainable MSME empowerment.

Keywords: *Digital Marketing, Digitalization, Google Maps, MSMEs, Rural Economy*

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1. Introduction

The acceleration of digital transformation across economic sectors has created both opportunities and challenges for Micro, Small, and Medium Enterprises (MSMEs) operating in rural areas of developing economies. MSMEs constitute the backbone of Indonesia's national economy, contributing approximately 61% of gross domestic product and absorbing more than 97% of the domestic workforce (Kementerian, 2023). However, the vast majority of rural MSMEs remain informationally invisible within the digital economy: they produce and sell locally but cannot be discovered, evaluated, or reached by consumers operating through digital search and navigation platforms. This digital invisibility constitutes a structural constraint on rural economic development that limits market access, suppresses competition, and perpetuates the urban-rural income gap (Prasetyo, & Nugroho, 2024; Setiawan, Rahmawati, & Putri, 2023).

Digital location platforms, particularly Google Maps, represent one of the most transformative yet underutilized tools available to rural MSMEs for overcoming this visibility constraint. With more than one billion monthly active users globally, Google Maps functions simultaneously as a local business directory, navigation tool, review platform, and consumer discovery engine. When a consumer searches for food, services, or products in a given area, Google Maps surfaces nearby registered businesses in prominent, geographically contextualized results. MSMEs that lack a Google Maps listing are effectively excluded from this consumer discovery process, regardless of the quality of their products or the convenience of their locations (Fitriani, & Hidayat, 2022; Wibowo, & Nugroho, 2024). The creation of a Google Maps business location listing is therefore not merely a cosmetic digital addition but a structural intervention in the information architecture of local commerce.

Gebang Village, located in Teluk Pandan District, Pesawaran Regency, Lampung Province, is a coastal community whose economic base encompasses fishing, agriculture, small-scale trade, and artisanal food production. The village's proximity to the Petengoran Mangrove Ecotourism area and adjacent coastal attractions creates additional potential for tourism-linked commercial activity, but this potential is constrained by limited visitor awareness of the commercial services available within the village (Kusuma & Rahman, 2024). Field observation conducted prior to the KKN program confirmed that a significant proportion of Gebang Village MSMEs lacked any form of digital presence, including Google Maps listings, social media profiles, or website registrations, leaving them undetectable to the digital consumers and tourists who constitute the primary growth segment for rural commercial development.

The challenge of MSME digital adoption in rural Indonesia is documented across multiple studies as a systemic problem rooted in digital literacy gaps, limited internet infrastructure, financial constraints, and the absence of technically capable support agents at the community level (Arifin, & Sari, 2023; Narmaditya, 2023). Research on digital transformation barriers among rural SMEs internationally confirms that infrastructure limitations, resistance to change, and regulatory gaps collectively inhibit adoption even when the cost of technology use is negligible (Rani, Redzuan, Samah, & Bolong, 2024; Zahoor, Zopiatis, Adomako, & Lamprinakos, 2023). The KKN community service model directly addresses the human capital barrier by deploying university students with digital competencies as community-embedded support agents who can both create digital assets on behalf of MSME owners and transfer the skills needed for their ongoing management.

The novelty of this study lies in its systematic documentation and evaluation of a zero-cost, KKN-delivered Google Maps location marking program for rural MSMEs in a coastal Indonesian village context, providing an empirically grounded account of the implementation process, outcomes, and transferable lessons that is underrepresented in both the Indonesian community service literature and the international rural digital transformation literature. This study aims to document the six-stage methodology of the Google Maps location marking program, evaluate the outcomes of the program in terms of MSME digital visibility, owner digital literacy, and program completeness, and derive transferable insights for KKN program designers, rural development practitioners, and

policymakers seeking to leverage geolocation tools for rural MSME economic empowerment in comparable settings across Lampung Province and Indonesia.

2. Literature Review

2.1 Digital Visibility and the Role of Google Maps for MSMEs

Digital visibility, defined as the degree to which a business is discoverable and accessible to consumers through digital platforms and search tools, has emerged as a critical determinant of MSME market competitiveness in the era of platform-mediated commerce. Research consistently demonstrates that consumers increasingly rely on digital search, navigation, and review platforms as their primary channel for discovering local businesses, with Google Maps occupying a dominant position in location-based business discovery worldwide (Fitriani, & Hidayat, 2022; Lestari, & Yuliana, 2022). Studies of Google Maps utilization for MSME promotion in Indonesia document a consistent pattern: businesses that create and actively manage Google Maps listings experience significant improvements in consumer discoverability, foot traffic, and revenue, while businesses that remain unregistered are effectively invisible to the growing proportion of consumers who use digital navigation as their first step in business location (Wibowo, & Nugroho, 2024; Aushafina, & Wikartika, 2023).

Google Maps provides a multi-functional digital promotional platform that extends well beyond simple location marking. A complete Google Business Profile on Google Maps allows businesses to display their operating hours, contact information, product and service categories, customer photographs, and consumer reviews in a format that appears prominently in both Google Search and Maps results. Husain, Robbo, Amri, and Maskar (2023) document in their case study of an MSME in Makassar that the integration of Google Business Profile with Google Maps enabled the business to reach consumers from beyond its immediate geographic catchment area and to build a digital reputation through customer reviews that functioned as an always-on word-of-mouth marketing mechanism. These multi-dimensional functions make Google Maps a uniquely cost-effective promotional platform for MSMEs that lack the financial capacity to invest in paid digital advertising or website development.

2.2 Digital Transformation of Rural MSMEs in Indonesia

Indonesia's national MSME digitalization agenda is articulated in the Roadmap for MSME Digitalization 2023, which sets a target of onboarding 30 million MSMEs onto digital platforms by 2030. Progress toward this target has been uneven, with urban MSMEs significantly outpacing their rural counterparts in digital adoption due to better connectivity, higher digital literacy levels, and greater exposure to digitally sophisticated consumers (Setiawan et al., 2023; Arifin & Sari, 2023). Research on the barriers to rural MSME digitalization identifies a consistent cluster of constraining factors: limited internet access in geographically remote areas, low baseline digital literacy among business owners, the perceived complexity and cost of digital tools, and the absence of trusted intermediaries who can demonstrate and support digital adoption at the individual business level (Rani et al., 2024; Narmaditya, 2023).

Community-based digital empowerment programs have demonstrated effectiveness in overcoming these barriers by providing human-mediated technology transfer at the grassroots level. Kusuma and Rahman (2024) document the potential of smart village concepts in supporting rural digital economic transformation, finding that community-level digital infrastructure programs that combine technology provision with skills training produce more durable adoption outcomes than technology-only interventions. Yulianti and Saputra (2023) further demonstrate that geographic information systems for MSME mapping at the village level can simultaneously improve individual business visibility and support community-level economic planning by revealing the spatial distribution of commercial activity. The Google Maps location marking program implemented in Gebang Village operationalizes both of these principles, combining technology installation with owner education to ensure that digital assets created by the KKN team persist and remain useful after the program concludes.

In addition, strengthening rural MSME digitalization requires an integrated ecosystem approach that involves collaboration between universities, local governments, and private digital platforms. Universities play a critical role as knowledge intermediaries through KKN programs, while local governments provide regulatory support and legitimacy, and digital platforms offer technical infrastructure for business visibility. Without such multi-stakeholder collaboration, digital interventions risk remaining fragmented and short-lived, limiting their impact on long-term economic development.

Moreover, sustainability of digital adoption in rural MSMEs depends not only on initial onboarding but also on continuous capacity building and adaptive learning processes. MSME owners often require repeated exposure and incremental training to fully internalize digital tools such as Google Maps, e-commerce platforms, and digital payment systems. Therefore, follow-up mentoring and community-based peer learning mechanisms are essential to ensure that early-stage digital transformation evolves into sustained digital business practices.

2.3 Digital Literacy as a Foundation for Sustainable MSME Development

The sustainability of digital interventions for MSMEs depends critically on whether business owners develop sufficient digital literacy to manage, update, and leverage their digital assets independently. Digital literacy in the MSME context encompasses the ability to access digital tools, create and maintain digital profiles, interpret digital performance data, and adapt digital marketing strategies in response to changing consumer behavior (Zahoor et al., 2023; Li et al., 2024). Research consistently demonstrates that MSME owners who receive structured digital literacy education, rather than merely having digital accounts created on their behalf, achieve significantly better long-term digital engagement and business performance outcomes (Narmaditya, 2023; Rani et al., 2024).

The education and mentoring dimension of the Gebang Village program, specifically the hands-on guidance of MSME owners in managing their own Google Maps profiles, reflects the evidence-based principle that technology transfer must be accompanied by capacity building to produce sustainable outcomes. Aushafina and Wikartika (2023), in their documentation of a Google Maps digitalization mentoring program for MSMEs in Kebondalem Village, find that businesses whose owners received hands-on profile management training continued to update their listings and respond to consumer reviews six months after the program concluded, demonstrating that education-enhanced digital adoption produces durable digital engagement. This sustainability principle is particularly important in the KKN context, where the student facilitation team has a defined operational period and cannot provide ongoing technical support once the deployment concludes.

This sustainability principle is particularly important in the KKN context, where the student facilitation team operates within a limited timeframe and cannot provide continuous technical assistance after program completion. Therefore, embedding self-reliance-oriented training during implementation becomes a critical strategy to ensure that MSMEs retain the ability to independently maintain and optimize their digital presence. In this way, digital empowerment is not only achieved through platform onboarding but also through the internalization of practical competencies that support long-term adaptability and resilience in digital business environments.

2.4 KKN as a Vehicle for Rural MSME Digital Empowerment

The Community Service Program (KKN) program occupies a distinctive institutional position as a recurring, geographically distributed mechanism for deploying university student competencies in digital marketing, information systems, and business development to rural communities that lack access to these skills through market channels. Nugroho, Fitriani, and Maulana (2023) document the specific role of KKN programs in supporting rural MSME digital transformation, finding that KKN delivered digital training consistently produces improvements in MSME owners' digital adoption intention and platform registration rates. The zero-cost implementation model is a particular strength of KKN based MSME digitalization programs: because student labor and university institutional support absorb the program delivery costs, rural MSME owners receive

professional-quality digital marketing services without the financial barriers that typically constrain their access to commercial digital marketing assistance (Wibowo & Nugroho, 2024).

In addition to its economic advantages, the KKN framework also functions as a practical learning laboratory for students, enabling experiential learning through direct engagement with community-based digital transformation challenges. This field-based learning approach strengthens students' applied competencies in problem-solving, communication, and digital implementation while simultaneously producing tangible benefits for local MSMEs. As a result, KKN serves a dual function as both a capacity-building platform for communities and a pedagogical instrument for higher education institutions.

Furthermore, the sustainability of KKN-based interventions is closely linked to the level of community participation and institutional follow-up after program completion. When MSME owners are actively involved in the design and execution of digital initiatives, the likelihood of continued platform usage and independent digital management increases significantly. Therefore, integrating post-program mentoring or periodic evaluation mechanisms can enhance the long-term impact of KKN activities, ensuring that digital transformation outcomes are not only achieved during the intervention period but also maintained over time.

3. Methodology

This study employs a qualitative descriptive approach to document and evaluate the implementation of the Google Maps location marking program for MSMEs in Gebang Village, conducted during KKN Period 1 2026 of Universitas Lampung. The qualitative framework is appropriate because the primary research objective is to provide a contextually rich account of the implementation process, outcomes, and program dynamics that quantitative methods alone would not adequately capture (Fitriani & Hidayat, 2022; Arifin & Sari, 2023). Primary data were generated through three complementary collection methods are participant observation conducted by the KKN team throughout all six implementation stages, capturing MSME owner engagement, technical challenges, and program dynamics, structured interviews with MSME owners during the identification and education stages to assess baseline digital awareness and post-program comprehension of Google Maps management, and systematic documentation of program outputs including before-and-after screenshots of Google Maps listings, GPS coordinate records, and business profile completion assessments. Secondary data comprised the academic literature on MSME digitalization, geolocation-based marketing, and rural digital transformation reviewed in Section 2, supplemented by national MSME statistics and Google Maps technical documentation.

The program was implemented on January 18, 2026, from 08.00 to 12.00 WIB, with M. Rifqi Zamzami and Zhafirah Zulfa serving as primary responsible coordinators supported by the full KKN team from Universitas Lampung and Universitas Sultan Ageng Tirtayasa. The implementation proceeded through six sequential and interdependent stages summarized in Table 1, constituting an action-research cycle from needs identification through evaluation. The identification stage systematically surveyed all commercial units in Gebang Village to determine which lacked active Google Maps listings, establishing the program's target population. GPS coordinates were collected using built-in smartphone location services at the precise geographic location of each business unit to ensure navigation accuracy. Business profiles were created using the Google Maps "Add your business" and Google Business Profile interfaces, with all data fields populated to maximize listing completeness, as research confirms that more complete and verified Google Business Profiles significantly improve visibility in local search results and customer discovery performance (Krstić, 2020; Yun & Park, 2025). Listings with complete information such as photos, hours, and contact details also tend to generate higher engagement and conversion rates in local digital ecosystems (Singh, Gupta, Kumar, Gupta, Alhalabi, Arya, & Zhang, 2024). The total program investment was Rp 0 in material costs, with all technical work performed using existing team smartphones and the free-to-use Google Maps platform, demonstrating the financial accessibility of geolocation-based digital marketing to rural communities.

Table 1. Google Maps Location Marking Program: Implementation Stages, Activities, and Expected Outputs

Stage	Activity	Technical Details	Expected Output
Identification	Field survey of MSMEs without Google Maps presence	Door-to-door visits to business units; cross-referencing with village MSME registry	Verified list of unregistered MSMEs requiring digital mapping
Data Collection	Business information and GPS coordinate recording	Smartphone GPS coordinate acquisition at exact business location; recording of business name, category, address, contact number, operating hours	Accurate geolocation data and complete business profile information
Profile Creation	Google Maps business listing creation	Entry of business profiles via Google Maps / Google Business Profile; upload of business photos; category selection; address pin placement	Active, publicly accessible Google Maps business listing
Verification	Location accuracy validation and profile quality check	On-site GPS accuracy test; cross-checking information completeness; correcting pin placement errors	Verified, accurate, and complete digital business profiles
Education	Owner training on independent profile management	Hands-on guidance on: updating business hours, responding to reviews, adding photos, editing contact information; demonstration on owner's smartphone	MSME owners capable of managing their own digital profiles independently
Evaluation	Program success assessment	Verification of all listings live on Google Maps; owner comprehension check; documentation of before/after digital presence	100% program success rate; all MSMEs digitally mapped and owners trained

Table 1 shows the implementation stages of the MSME digital mapping program, which consisted of identification, data collection, profile creation, verification, education, and evaluation. The program began with field surveys to identify MSMEs that were not yet registered on Google Maps, followed by the collection of business information and GPS coordinates. The data were then used to create and verify Google Maps business profiles to ensure accuracy and completeness. MSME owners also received hands-on training on managing their digital profiles independently, consistent with findings that digital literacy training significantly improves MSME adoption of location-based platforms and online visibility (Rahayu & Day, 2020; Kurniawati et al., 2023). The evaluation results indicated that all targeted MSMEs were successfully mapped on Google Maps and that business owners gained the necessary skills to maintain and update their online presence, resulting in a 100% program success rate, aligning with evidence that structured digital onboarding programs significantly enhance SME digital presence and customer discoverability (Halim, Wijaya, & Hartono, 2021).

4. Results and Discussion

4.1 MSME Identification and Profile Creation

The identification stage confirmed that a significant proportion of Gebang Village's MSME community lacked any form of digital presence on Google Maps prior to the program. Business units identified for digital registration spanned multiple economic sectors characteristic of coastal rural villages in Pesawaran Regency, including food and beverage preparation (home-based catering and snack production), fresh seafood retail, small-scale agricultural produce trade, and artisanal

household goods. The sectoral diversity of the targeted MSMEs is significant from a rural economic development perspective, as it reflects the productive diversity of the village economy and the corresponding breadth of the program's potential impact on consumer discoverability across multiple commercial categories.

Figure 1. KKN Team Conducting GPS Coordinate Acquisition at MSME Location in Gebang Village

Figure 1 describe about each identified MSME, GPS coordinates were collected at the precise business location using smartphone GPS functionality, which provides location accuracy sufficient for Google Maps pin placement in low-density rural environments. Business profiles were created with complete information across all available fields: business name, primary and secondary category, street address (with Google Maps pin placed at exact GPS coordinates), contact telephone number, operating hours for each day of the week, a brief business description, and photographic documentation of the business premises and representative products. The inclusion of photographs was emphasized in the team's implementation protocol because research consistently demonstrates that listings with photos achieve significantly higher consumer engagement rates than text-only profiles (Husain et al., 2023; Wibowo & Nugroho, 2024).

4.2 Pre- and Post-Activity Condition Assessment

Table 2 presents a systematic comparison of the initial conditions observed during the identification stage against the target final conditions achieved through the program's six implementation stages. This structured assessment framework provides the evaluative basis for the program's reported 100% success rate.

Table 2. Pre-Activity Conditions, Interventions Delivered, and Post-Activity Target Conditions by Program Dimension

No.	Initial Condition	Intervention	Target Final Condition
1	Most MSMEs in Gebang Village lacked a digital location point on Google Maps, making them undetectable to digital consumers	MSME data collection and business location point creation on Google Maps	All targeted MSMEs possess digital identities and can be easily located via Google Maps by consumers inside and outside the village
2	MSME owners did not understand Google Maps as a promotional tool or perceive it as relevant to their business	Socialization and hands-on mentoring on Google Maps utilization	MSME owners understand Google Maps functions and recognize its role in improving business visibility and market reach
3	Business information (address, contact, hours) not available in digital form; inaccessible to online searchers	Input of complete business data including address, contact, and operating hours	Complete business information publicly accessible online to any internet user searching in the area

No.	Initial Condition	Intervention	Target Final Condition
4	Consumers faced difficulty locating businesses due to absence of digital navigation reference points	GPS coordinate acquisition and location verification at each business site	Consumers can find business locations accurately using real-time GPS navigation via Google Maps
5	MSME owners unable to manage their own business profiles; dependent on external assistance	Hands-on education and guided practice in profile management on owners' own devices	MSME owners independently manage, update, and enhance their Google Maps business profiles on an ongoing basis

All five target conditions in Table 2 were confirmed as met through the post-activity evaluation. The most immediately verifiable outcome, the existence of active and accurate Google Maps listings for all targeted MSMEs, was confirmed by the team through live Google Maps searches on multiple devices following profile creation and verification. Listings appeared in location-based searches using both the business name and general category terms such as "warung" or "penjual ikan" in the Gebang Village area, confirming that the algorithmic indexing of the new profiles was complete and that consumers conducting routine geographic searches would encounter the businesses.

Figure 2. MSME Owner Receiving Hands-On Education in Google Maps Profile Management

Figure 2 describe about the education and mentoring stage produced demonstrable improvements in MSME owners' digital platform competency, as assessed through post-activity knowledge checks in which owners were asked to independently demonstrate specific profile management tasks on their own smartphones: updating operating hours, adding a new photograph, and locating their own business listing. All participating owners successfully completed these demonstration tasks under facilitator observation, confirming the attainment of the baseline digital management competency defined as the educational outcome target for the program.

4.3 Discussion

The results of the Gebang Village Google Maps location marking program provide strong empirical support for the effectiveness of geolocation-based digital identity interventions as a primary mechanism for rural MSME digital empowerment. The program achieved its full suite of outcome targets within a single four-hour operational window at zero direct cost to participants, demonstrating an exceptionally favorable impact-to-resource ratio that distinguishes this approach from more capital-intensive digital marketing solutions. Wibowo and Nugroho (2024) document comparable outcomes in their study of Google Business Profile utilization for rural MSMEs, confirming that the creation of complete and accurate Google Maps listings produces immediate improvements in business discoverability that translate into measurable consumer interaction increases within weeks of listing activation (Chaffey, & Ellis-Chadwick, 2019; Kannan, & Li, 2017).

The sectoral diversity of the MSMEs mapped in Gebang Village reflects a broader pattern documented across rural Indonesian communities, where economic activity is organized around multiple small-scale production and trade enterprises rather than a single dominant commercial

form. Arifin and Sari (2023) demonstrate that digital mapping of this type of economically diverse rural MSME landscape produces cumulative agglomeration effects: when consumers discover one business through a digital platform, the proximity of other visible businesses increases the probability of multi-stop visits, generating positive externalities for the broader local commercial ecosystem (Buhalis, & Sinarta, 2019; Gretzel, Sigala, Xiang, & Koo, 2020). This aligns with smart tourism theory, which emphasizes how digital visibility clusters enhance destination competitiveness (Xiang, Wang, & Fesenmaier, 2021).

The zero-cost implementation model is a programmatic feature of significant policy relevance. The persistent underrepresentation of rural MSMEs in digital platforms is frequently attributed to financial constraints and limited digital marketing capacity (Setiawan, Rahmawati, & Putri, 2023; Narmaditya, 2023). The program leverages free Google infrastructure and student labor, aligning with inclusive digital economy strategies promoted in emerging markets (World, 2020; OECD, 2021). This scalability advantage positions the intervention as suitable for replication in broader regional development programs. The education dimension of the program addresses the dependency problem in digital adoption. Research shows that sustainability of MSME digital transformation depends strongly on digital literacy and owner capability (Zahoor, Zopiatis, Adomako, & Lamprinakos, 2023; Li, Su, Zhang, & Mao, 2024). Embedding hands-on training ensures knowledge transfer and long-term platform maintenance capacity, consistent with experiential learning theories in technology adoption (Venkatesh, Thong, & Xu, 2020; Dwivedi, 2021).

The geographic and economic context of Gebang Village amplifies program effectiveness due to its proximity to the Petengoran Mangrove Ecotourism area. Tourism research shows that visitors increasingly rely on mobile mapping systems for destination discovery and consumption decisions (Tussyadiah & Zach, 2020; Buhalis and Sinarta, 2019). This creates high-value exposure for MSMEs integrated into digital maps, especially in ecotourism-linked economies (Kim & Fesenmaier, 2021). The challenges encountered during implementation provide important operational insights. GPS inaccuracies in dense vegetation areas are a known limitation of mobile positioning systems (Zandbergen, 2019). Behavioral resistance among older MSME owners aligns with digital adoption barriers in rural economies. Demonstration-based persuasion strategies have been shown to significantly improve perceived usefulness and adoption intention in low-literacy digital environments (Davis, 1989; Venkatesh et al., 2020). These findings reinforce the need for structured facilitation models in future deployments.

Viewed within the broader context of Indonesia's national MSME digitalization policy, the Gebang Village program illustrates an important principle: effective rural digital economic transformation is not primarily a technology problem but a human capital problem. The technology, Google Maps and its underlying Google Business Profile infrastructure, is free, widely accessible, and technically straightforward to use. The binding constraint is the absence of digitally literate intermediaries at the village level who can introduce MSME owners to these tools, demonstrate their value through real-time examples, guide initial profile creation, and provide the foundational training required for ongoing independent management. The KKN deployment model, which places technically capable university students in village communities for sustained periods, precisely addresses this human capital gap. Scaling this model systematically, through integration with provincial MSME digitalization programs, coordination with the Ministry of Cooperatives and SMEs, and engagement with village government digital transformation plans, would enable the program's demonstrated approach to reach the hundreds of villages in Lampung Province and the thousands across Indonesia that share Gebang Village's profile of resource-rich, digitally underrepresented rural MSMEs. The cost-effectiveness, institutional replicability, and demonstrated immediate outcomes of the Google Maps location marking model make it one of the most compelling tools available for accelerating the rural digital economic transition that Indonesia's development agenda requires.

The contribution of this study to the academic literature on rural MSME digital transformation extends in two directions. At the theoretical level, the Gebang Village case provides empirical support for the proposition that geolocation-based digital identity creation constitutes a distinct and structurally impactful category of digital intervention that operates through a different mechanism

than conventional digital marketing training: rather than improving owners' marketing skills, it inserts businesses into the consumer discovery architecture of the most widely used location platform in the world, producing visibility benefits that accrue regardless of owners' subsequent digital engagement levels. This distinction has important implications for program design, suggesting that geolocation registration should precede, rather than follow, more complex digital marketing capability-building, as it provides an immediately operational digital foundation on which more sophisticated marketing competencies can later be built. At the practical level, the study's documentation of the six-stage implementation methodology, the specific technical challenges encountered, and the owner education approach employed provides a detailed and replicable program guide for future KKN cohorts and community development practitioners seeking to deploy analogous programs in comparable rural village contexts, contributing to the evidence base for participatory digital MSME empowerment across the Indonesian archipelago.

5. Conclusions

5.1 Conclusion

The Google Maps location marking program for MSMEs in Gebang Village, Teluk Pandan District, Pesawaran Regency, implemented by KKN students from Universitas Lampung and Universitas Sultan Ageng Tirtayasa on January 18, 2026, successfully achieved a 100% program success rate across all five assessed outcome dimensions. All targeted MSMEs were registered with complete business profiles on Google Maps, making them discoverable to digital consumers through location-based search and navigation. All participating MSME owners demonstrated foundational competence in independent profile management following hands-on education. The program was delivered at zero material cost to participants, establishing a financially accessible and institutionally scalable model for rural MSME digital empowerment.

The program confirms that Google Maps location marking constitutes an exceptionally high-impact, low-cost digital intervention for rural MSMEs that is well-suited to KKN community service delivery. By addressing both the technology installation and digital literacy dimensions of digital adoption within a single four-hour program, the initiative creates durable digital marketing assets whose value accrues over the long term as MSME owners actively manage and enhance their profiles and as the listings accumulate consumer reviews and interaction data. The Gebang Village case provides a validated model for comparable programs in rural coastal and ecotourism-adjacent communities across Lampung Province and Indonesia more broadly, demonstrating that the urban-rural digital visibility gap that constrains rural MSME competitiveness can be meaningfully narrowed through structured, student-led geolocation-based interventions deployed within the existing KKN institutional framework.

5.2 Research Limitations

This study has several limitations. First, the evaluation methodology relied on qualitative observation and facilitated competency demonstrations rather than validated quantitative measures of digital literacy improvement, limiting the precision and comparability of outcome assessment. Second, the study does not include longitudinal follow-up data on Google Maps listing performance metrics such as search impressions, direction requests, website clicks, or phone calls, which would provide direct evidence of the program's impact on consumer discoverability over time. Third, the program targeted a single village, restricting generalizability to other rural MSME contexts with different digital infrastructure conditions, owner demographic profiles, and commercial sector compositions. Fourth, the study does not capture data on actual changes in MSME revenue, customer volume, or market reach following registration, precluding any assessment of the program's economic impact. Fifth, the post-activity evaluation was conducted immediately following the education session, providing no data on whether owners maintained and updated their Google Maps profiles in the weeks and months following program completion.

5.3 Suggestions and Directions for Future Research

Several research and program development directions emerge from the findings and limitations of this study. Future programs should incorporate systematic pre-post measurement of MSME owner digital literacy using validated instruments, enabling rigorous assessment of education effectiveness

and identification of digital skill gaps that require targeted supplementary training. Longitudinal follow-up studies tracking Google Maps business profile performance metrics at one, three, and six months post-program would provide direct evidence of the program's impact on consumer discovery and allow assessment of owner profile maintenance behavior over time. Comparative multi-village studies across Pesawaran Regency would enable the identification of contextual factors, including internet connectivity quality, tourism proximity, owner age and education level, and MSME sector, that moderate program effectiveness and guide context-specific program adaptation. Future programs should explore the integration of Google Maps listing creation with complementary digital marketing interventions, including WhatsApp Business registration, social media account creation, and QRIS payment system enrollment, to build more comprehensive digital identities for MSME owners. Research on the economic multiplier effects of village-level MSME Google Maps clusters, specifically the degree to which digital visibility of one business generates positive discovery externalities for neighboring businesses in the same geographic area, would advance understanding of the community-level economic development potential of geolocation-based MSME digitalization programs.

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