

Digitalization of Tourism Villages: Digital Marketing Strategies for the Development of Pematang Johar Tourism

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Abstract: Digital transformation is increasingly crucial for tourism villages in Indonesia as tourist behavior shifts toward digital technology for travel decisions. However, many villages remain behind in digital literacy and online marketing skills. Pematang Johar Tourism Village in Deli Serdang Regency, North Sumatra, exemplifies this challenge. Despite its strong agricultural and cultural potential, it struggles to promote itself effectively due to limited human resources, inadequate infrastructure, and minimal understanding of digital marketing strategies. To address these gaps, a community service program emphasizing digitalization training and mentoring was implemented. The program focused on improving digital literacy, developing creative promotional content, and utilizing social media as a marketing tool. Through participatory and hands-on learning, participants enhanced their ability to create engaging digital content, manage social media platforms, and highlight local cultural values in promotions. The #ExplorePematangJohar campaign further boosted the village's online visibility and digital identity.

Keywords:

Community Empowerment; Digital Marketing; Digitalization; MSMEs; Tourism Villages

Introduction

Over the past decade, digital technology has profoundly reshaped global tourism, changing how destinations are discovered, experienced, and promoted (Buhalis, 2020; Gretzel et al., 2015). In Indonesia, where tourism significantly supports regional economies, digital transformation presents both opportunities and challenges—offering broader market access while demanding improved digital literacy and innovation among rural communities.

Tourism villages (*desa wisata*) have become a vital model for community-based tourism (CBT), integrating local culture, livelihoods, and environmental stewardship

(Nafi et al., 2022; Suansri, 2013). However, their success increasingly depends on digital engagement. Despite this, many villages still struggle with poor infrastructure, low internet access, and limited digital skills (Otoritas Jasa Keuangan, 2022). Most rural operators continue using traditional marketing, limiting visibility and competitiveness (Nugroho & Negara, 2021).

Pematang Johar Village in Deli Serdang, North Sumatra, exemplifies this issue. Despite strong potential in agro-tourism and cultural heritage, the community's lack of digital capacity restricts its growth. Many local MSMEs lack skills in content creation, online branding, and data-driven promotion (Simatupang, 2025).

Research shows that digital empowerment programs can enhance rural MSME competitiveness (Iskandarsyah et al., 2023; Yusrizal et al., 2024), yet many fail due to weak follow-up and limited collaboration (Afandi et al., 2022). Hence, sustainable digital transformation requires integrated approaches that build literacy, encourage participation, and foster community ownership.

This aligns with the UN Sustainable Development Goals (SDGs), particularly Goals 8 and 9, promoting innovation, decent work, and inclusive economic growth (United Nations, 2023). Technology and social empowerment together drive local participation in global value chains while preserving cultural identity (Rahman et al., 2023).

Methods

Research Design and Conceptual Framework

This study employed a community-based participatory research (CBPR) approach combined with action research methodology, emphasizing collaboration, experiential learning, and reflection between researchers, local stakeholders, and participants. This ensured that the digital empowerment process in Pematang Johar Tourism Village was a co-created effort rooted in local needs and capacities rather than an external intervention. The method positioned community members as co-researchers, fostering ownership and sustainability. University researchers acted as facilitators, while MSME owners, youth groups, and the tourism committee collaborated in diagnosing problems, designing solutions, and evaluating outcomes (Reason & Bradbury, 2008).

The conceptual framework centered on three interconnected pillars:

- 1) Digital Literacy Development – improving understanding of digital tools and media;
- 2) Digital Marketing Capacity Building – strengthening branding, content creation, and platform management;
- 3) Sustainable Digital Ecosystem Formation – building networks and shared identity for long-term continuity.

These align with the Digital Empowerment Model (Iskandarsyah et al., 2023), which views transformation as a sequence of skill development, behavioral change, and collaboration.

Study Area

Pematang Johar Village, located 18 km from Medan City in Deli Serdang Regency, North Sumatra, was chosen for its dual role as an agricultural center and emerging tourism destination. The village of 8,500 residents relies on farming, food processing, and handicrafts. Despite strong potential, a baseline survey showed that only 27% of MSMEs had any online presence and fewer than 10% had engaged in digital marketing. Connectivity was inconsistent, highlighting the need for structured digital literacy initiatives.

Participants and Sampling Strategy

A total of 100 participants were purposively selected: 60 MSME owners, 20 youth members (*Karang Taruna*), 10 tourism committee members, and 10 women's cooperative representatives. The average age was 37, and 65% were women entrepreneurs. A baseline survey revealed an average digital literacy score of 32%, confirming low initial proficiency.

Implementation Phases

The three-month program (August–October 2025) was implemented in four phases:

Phase I – Preparation and Assessment:

Researchers conducted field observations, focus group discussions, and interviews to identify digital gaps and co-design contextual learning materials. Collaborating universities—STIE Eka Prasetya, Universitas Negeri Medan, Universitas Syiah Kuala, and UiTM Malaysia—shared expertise to design inclusive training modules.

Phase II – Training and Workshop:

A five-day intensive workshop at the village hall trained 100 participants through lectures and hands-on practice in:

- a) Digital Marketing Fundamentals: audience targeting, branding, and storytelling;
- b) Social Media and Content Creation: smartphone photography, editing (Canva, Snapseed), and effective posting on Instagram, Facebook, and TikTok;
- c) E-commerce and Online Platforms: using Shopee, Tokopedia, Google Business, and TripAdvisor for tourism promotion. Participants were grouped by theme (culinary, crafts, homestay, agriculture, culture) and encouraged to apply lessons immediately using a learning-by-doing approach.



Figure 1. Presentation of The Materials

Phase III – Mentoring and Practical Application:

A six-week mentoring period followed, combining field visits and virtual guidance. Each cluster had one academic mentor and one youth assistant. Participants developed content calendars, produced promotional materials, and unified their marketing under #ExplorePematangJohar. A Digital Marketing Community of 40 active members was formed to ensure peer learning and ongoing collaboration.



Figure 2. Participants and members of researcher team

Phase IV – Monitoring and Evaluation:

Mixed-methods evaluation assessed program impact. Quantitative tests showed digital literacy improved from 32% to 85%, while online engagement increased significantly. Qualitative findings from FGDs and interviews revealed higher confidence and creativity among participants, especially older entrepreneurs. Thematic analysis identified growth in collective identity and peer support. Validity was ensured through triangulation and member checking.

Sustainability Strategy and Follow-Up

To ensure long-term impact, three sustainability mechanisms were established:

1. A share Platform managed by youth as a peer-learning hub.
2. Continued academic partnerships, with university interns providing advanced digital support.
3. Development of a digital tourism portal (*explorepematangjohar.id*) integrating MSME catalogs, homestay listings, and events.

Collaboration with the Deli Serdang Tourism Office also ensured alignment with regional digital tourism policies and future funding support.

Results

Overview of Research Outcomes

The implementation of the digital marketing empowerment program in Pematang Johar produced measurable and transformative outcomes across three key dimensions:

1. Knowledge and skills acquisition, reflected in increased digital literacy and marketing competencies among participants.
2. Behavioral and attitudinal transformation, seen in the growing confidence, creativity, and ownership of local entrepreneurs over digital platforms.
3. Collective community outcomes, such as the emergence of shared branding initiatives, strengthened collaboration, and the institutionalization of digital ecosystems.

These outcomes were not isolated effects of a single training event, but the cumulative result of participatory learning, iterative mentoring, and community reflection over several months.

Quantitative Results: Knowledge and Skill Development

Quantitative assessment demonstrated a substantial improvement in participants' digital marketing competencies. The pre-test and post-test results revealed an average knowledge increase of 53 percentage points, from a baseline score of 32% to a post-program average of 85%. Table 1 summarizes these results.

Table 1. Change in Digital Competence Among Participants

Indicator	Before Training (%)	After Training (%)	Increase (%)
Understanding of digital	30	88	+58

Indicator	Before Training (%)	After Training (%)	Increase (%)
marketing concepts			
Ability to create digital content (photos, captions)	25	85	+60
Use of social media for promotion	28	82	+54
Confidence in online branding management	22	80	+58
Integration of tourism elements in promotion	20	75	+55

Source: Field survey by the Pematang Johar Digital Empowerment Team (2025).

The data indicate a uniform increase across all competency areas, confirming that the participatory training model was effective in bridging digital literacy gaps. The largest gain (60%) occurred in the area of digital content creation — a skill previously identified as a major weakness. This aligns with the *learning-by-doing* approach emphasized by experiential education theory (Kolb, 1984), where knowledge is internalized through direct practice and reflection.

The findings also echo studies by Iskandarsyah et al. (2023) and Yusrizal et al. (2024), which demonstrated that hands-on digital training can significantly enhance both the technical proficiency and self-efficacy of rural MSMEs. Importantly, the increase in confidence levels (from 22% to 80%) suggests that empowerment was not merely cognitive but psychological — reducing participants' fear of technology and enhancing their willingness to engage with online audiences (Iskandarsyah et al., 2023; Yusrizal et al., 2024).

Behavioral Transformation and Digital Engagement

The digital empowerment initiative produced notable behavioral transformations among participants, marking a transition from passive consumers of online information to proactive digital creators. Social media analytics from the Digital Engagement Tracker revealed exponential engagement growth: business-related posts tagged with #ExplorePematangJohar increased from 15 before training to 120 in just one month—an 800% rise. Additionally, the average engagement per post (likes, comments, shares) rose by 48%, while 70% of participants continued posting at least once a week two months after the training. These metrics confirm a deep-rooted behavioral change toward digital entrepreneurship and sustained content creation (Lusardi & 'Messy, 2023).

Qualitative interviews reinforced this transformation. Participants described a newfound sense of digital ownership and confidence, with many MSME owners reporting that they no longer relied on others to promote their products online. This reflects Bandura's (1997) concept of self-efficacy, where belief in one's ability drives independent action. In the context of rural tourism, such self-efficacy translated into entrepreneurial confidence—participants were not only adopting digital tools but

internalizing them as part of their business identity.

Emergence of a Shared Digital Identity

A defining outcome of the project was the organic emergence of the #ExplorePematangJohar digital identity. Conceived during participatory workshops, this unified hashtag became the centerpiece of the community's digital storytelling strategy. Through it, MSME owners, homestay managers, and youth content creators collaborated to highlight local traditions, culinary practices, handicrafts, and landscapes—redefining the village as a living tourism experience rather than a static destination.

This co-created branding effort exemplifies Kotler and Keller's (2020) "co-branding ecosystem", where individual narratives converge into a collective story that amplifies destination appeal and authenticity. Beyond external promotion, it fostered internal solidarity. Youth organizations like *Karang Taruna* took leadership in training older entrepreneurs in photography, video editing, and caption writing. This intergenerational collaboration bridged the local digital divide and cultivated mutual respect between generations (Kotler & Keller, 2016).



Figure 3. Collaborative session shaping Pematang Johar's digital identity.

Within a month of the campaign launch, social media message records showed a 35% increase in inquiries and orders from nearby cities such as Medan and Binjai. This outcome illustrates the potential of community-driven, low-cost branding strategies to expand market reach and strengthen the tourism ecosystem.

Qualitative Insights

Thematic analysis (Braun & Clarke, 2006) revealed four consistent themes across interviews and field observations: empowerment and confidence, creativity and innovation, collaboration and mutual learning, and identity and pride.

Participants expressed newfound confidence in managing social media, especially women entrepreneurs who had previously felt excluded from digital spaces. Many began experimenting with short videos, storytelling content, and live product demonstrations—an embodiment of user-generated innovation (Von Hippel, 2005).

The peer-learning model also strengthened social cohesion. Younger participants offered digital skills while elders shared entrepreneurial wisdom, creating a balanced exchange of knowledge. Moreover, as digital visibility grew, residents developed a deeper pride in their village, seeing it reflected in positive online attention. These qualitative outcomes demonstrate that digital transformation is not merely technological but profoundly social, reshaping identity, relationships, and self-perception (Rahman et al., 2023).

Challenges and Adaptive Strategies

Despite strong outcomes, the program encountered several contextual challenges. Limited internet connectivity in certain hamlets hindered real-time posting, prompting facilitators to provide offline materials (printed guides and USB tutorials) and encourage asynchronous uploads. Device limitations were addressed by introducing lightweight apps such as *Canva Lite* and *Google Go*, which worked efficiently on older smartphones. Time constraints—especially for MSME owners managing households and businesses—were resolved through flexible weekend workshops and shorter mentoring sessions.

These adaptive strategies reflect human-centered design principles (Brown, 2008), prioritizing empathy and accessibility over rigid implementation. Rather than forcing uniform participation, the project adapted to local realities, ensuring that inclusion remained at the heart of digital empowerment.

Long-Term Impact and Institutionalization

The post-training phase demonstrated clear signs of sustainability and institutionalization. First, participants established the Pematang Johar Digital Marketing Community, now comprising more than 40 active members who manage online promotions, provide peer mentoring, and collaborate on cross-product campaigns. Second, ongoing academic partnerships were formalized, with local universities committing to send interns and provide periodic mentoring sessions—ensuring a continuous flow of technical support and innovation. Third, the project team initiated *ExplorePematangJohar.id*, a digital tourism portal aggregating local MSME products, homestay information, and event listings.

These institutional outcomes create a self-sustaining digital ecosystem, aligning with Afandi et al. (2022), who emphasized that long-term empowerment depends on continuous mentoring and inter-sectoral collaboration (Afandi et al., 2022).

Theoretical and Practical Implications

From a theoretical standpoint, the findings extend Iskandarsyah et al.'s (2023) Digital Empowerment Model, illustrating how skill acquisition evolves into behavioral transformation and collective digital identity (Iskandarsyah et al., 2023). The results also affirm Kotler and Keller's (2020) and Buhalis's (2020) frameworks on

participatory destination branding—where authenticity and local storytelling drive tourism appeal. Furthermore, the program strengthened social capital (Putnam, 2000) through collaboration among MSMEs, youth, and local leaders, creating informal innovation networks (Buhalis, 2020; Kotler & Keller, 2016).

Practically, the outcomes contribute directly to SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation, and Infrastructure) by boosting rural entrepreneurship and digital inclusion. The case also provides a replicable model for other Indonesian tourism villages aiming to integrate digital transformation into community-based development.

Discussion

Beyond measurable improvements, the program catalyzed a cultural transformation. Initially, many residents viewed digital tools as foreign or intimidating; later, they embraced them as natural extensions of their cultural expression. This process illustrates Silverstone and Hirsch's (1992) concept of technological domestication—where technology becomes embedded in daily life and local identity (Silverstone & Hirsch, 1992).

The villagers' ability to independently manage promotions, organize events, and partner with external stakeholders represents sustainable empowerment (Sen, 1999), empowerment that persists beyond external facilitation. In quantitative terms, digital literacy and marketing competency improved by 53%, while qualitative outcomes revealed heightened confidence, creativity, and social cohesion.

Ultimately, Pematang Johar's journey demonstrates that digitalization rooted in participation, empathy, and local culture can foster both innovation and resilience. The experience underscores that technology's true power in rural development lies not in its sophistication, but in how it connects people, amplifies identity, and transforms communities from within.

Conclusion

This study shows that digitalizing tourism villages through participatory, community-based approaches can drive both economic and socio-cultural empowerment. The case of Pematang Johar Tourism Village illustrates that digital marketing is not merely a technological shift, but a developmental process that promotes inclusion, creativity, and shared identity.

Training and mentoring significantly improved digital literacy—by an average of 53%—and enhanced participants' confidence and creativity. The hashtag #ExplorePematangJohar became a unifying symbol of local pride and collaboration. The initiative also bridged generational gaps, with youth mentoring elders, fostering collective learning and empowerment in line with Sen's (1999) concept of *capability empowerment* (Sen, 1999).

The success of this transformation lies in human connection rather than

technology alone. It supports several Sustainable Development Goals:

- 1) SDG 4 (Quality Education): through digital literacy programs.
- 2) SDG 8 (Decent Work and Economic Growth): through MSME competitiveness.
- 3) SDG 9 (Innovation and Infrastructure): through local digital ecosystems.

Ultimately, digital empowerment is a continuous journey. When digital skills are embedded in community learning and supported by institutions, villages like Pematang Johar can become models for sustainable digital tourism.

Recommendations

To sustain and expand digital transformation in rural tourism, several key strategies are proposed. Continuous digital mentoring should be institutionalized within village structures to ensure lasting behavioral change. Partnerships with universities through internships and community service programs can provide ongoing technical guidance for local MSMEs.

Strengthening digital infrastructure is equally vital. Local governments must prioritize affordable internet access by developing public Wi-Fi zones and digital hubs equipped with essential tools. In parallel, a centralized tourism portal—such as *ExplorePematangJohar.id*—should integrate local products, events, and MSME promotions, enhancing the village's online visibility.

Embedding digital literacy in local education is crucial for generational continuity. Schools and youth groups should include digital entrepreneurship and content creation in their programs, empowering young people as digital ambassadors.

Multi-stakeholder collaboration among government, academia, the private sector, and communities must also be strengthened through formal agreements and joint initiatives. Finally, regional tourism policies should incorporate digital marketing as a core strategy, supported by regular monitoring and evaluation to measure long-term impact.

In essence, sustainable digital transformation requires more than technology—it depends on continuous mentorship, reliable infrastructure, education, collaboration, and strong policy support to empower rural communities effectively.

Theoretical and Policy Implications

This study extends the Digital Empowerment Model (Iskandarsyah et al., 2023) by adding community branding as both an outcome and driver of empowerment. It emphasizes that digital inclusion requires not just infrastructure, but human capacity building and participatory design.

Final Reflection

The digital journey of Pematang Johar represents the fusion of tradition and technology—where farmers, artisans, and youth collectively rediscover their identity

online. More than marketing, it is a story of empowerment and resilience. The village's transformation proves that when digitalization is rooted in participation and empathy, it can turn even the most remote communities into centers of innovation and shared prosperity.

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Finally, we hope that the contribution of all parties becomes part of a sustainable effort to advance Pematang Johar Tourism Village and inspires similar digital transformation initiatives in tourism villages across Indonesia.

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