

A Participatory Model for Sustainable Branding of Heritage SMEs: Digital Communication and AI Empowerment in Batik Lasem

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ABSTRACT

Through a participatory engagement program, 20 participants consisting of Batik artisans and representatives from non-governmental organizations at the Lasem Heritage Foundation in Central Java were involved in strengthening the sustainable branding of Batik Lasem small and medium-sized enterprises (SMEs). The program addressed key challenges faced by cultural SMEs, including limited digital access, low global visibility, and constraints in adopting new technologies in heritage-based industries. Focusing on practical applications of digital tools, the program integrated digital communication, generative artificial intelligence (GenAI), and augmented reality (AR) into facilitated training sessions. Participants were introduced to tools such as ChatGPT for caption generation and SUPA AI for visual design, enabling rapid and accessible content creation. Through collaborative activities, participants transformed cultural assets into contemporary digital narratives that maintain authenticity while enhancing market appeal.

The findings indicate observable improvements in participants' understanding of sustainable branding, digital communication skills, and willingness to adopt AI-driven marketing strategies. In addition, the program strengthened collaboration and knowledge exchange among participants. However, several challenges were identified, including variations in digital literacy, limited technological resources, and initial resistance to innovation. Structured observational assessment further supports these outcomes, showing that approximately

85% of participants demonstrated improved understanding of sustainable branding, 80% were able to produce structured digital content, and GenAI adoption increased from 10% to 70%. Active participation in collaborative discussions also rose to 90% of participants. Overall, the study highlights the importance of integrating cultural knowledge with digital innovation and demonstrates that participatory, practice-based approaches can enhance digital capability and sustainable branding in heritage SMEs.

Keywords: sustainable branding, cultural SMEs, digital communication, GenAI, participatory community engagement, Lasem.

INTRODUCTION

Community Engagement in Higher Education's Background

Higher education now involves a greater emphasis on community service as per the Tri dharma Perguruan Tinggi, which emphasizes the importance of teaching, research, and active participation in community activities. Including practical exposure to tools such as Generative Artificial Intelligence (GenAI) platforms and digital design applications. Scholars in this framework are not only producers of knowledge but also. Facilitators and agents of social transformation, who are responsible for translating scholarly knowledge into action. practical solutions for society. Existing studies highlight that community engagement fosters knowledge co-creation, local empowerment, and inclusive innovation ecosystems (Chang et al., 2021; M. A. Majeed, 2025; Trencher et al., 2014). Participatory engagement models further emphasize collaboration between universities and local stakeholders in addressing real-world problems. In addition, models of participatory engagement emphasize the need for collaboration between universities and local stakeholders to address real-world problems. In culturally embedded industries like traditional crafts, the literature has primarily focused on institutional frameworks and outcomes rather than exploring how engagement activities are operationalized. This is a notable gap. Evidence from practice-based accounts that illustrate how academic interventions can effectively promote socio-cultural values and the well-being of local communities is highlighted by this gap. However, prior research has largely focused on conceptual frameworks and outcomes, with limited attention to how community engagement is operationalized in practice, particularly in culturally embedded industries such as traditional crafts. This lack of practice-based evidence creates a gap in understanding how academic interventions translate into actionable strategies and measurable community impact.

The Cultural Economy and the Challenges of Batik Lasem SMEs

Batik Lasem represents a distinctive segment of Indonesia's cultural economy, characterized by its historical legacy, unique motifs, and strong symbolic meanings shaped by cross-cultural interactions, particularly Chinese and Javanese influences. As an essential part of the creative economy, batik plays a vital role. Small and medium-sized enterprises (SMEs) play a significant role in generating local economic activity. Revenue, the protection of traditional knowledge, and the strengthening of cultural identity. Recent literature shows that cultural industries face increasing pressure to adapt to global markets while maintaining authenticity (Aaltonen et al., 2015; Akbulut et al., 2026; Dias et al., 2023). Despite its cultural richness, Batik Lasem SMEs continue to face challenges such as limited digital marketing capabilities, weak branding strategies, and restricted access to global markets. Notwithstanding its abundant cultural heritage, Batik Lasem persistently encounters systemic obstacles, encompassing insufficient digital marketing initiatives, ineffective branding methodologies, and constrained entry to global markets. Many small and medium-sized businesses still rely on traditional methods. Marketing techniques that limit their visibility and competitive advantage. Prior investigations have recognized the significance of narrative construction and brand identity in the augmentation of market positioning; nevertheless, they frequently neglect the operational limitations encountered by small-scale artisans, especially in the assimilation of digital technologies. Consequently, a disparity remains between the acknowledged cultural worth of Batik Lasem and its tangible effectiveness in international markets (Stock & Stock, 2024; Wijaya & Moko, 2026). Although prior studies acknowledge the importance of branding and storytelling in improving competitiveness, they rarely address how these strategies are practically implemented by small-scale artisans, particularly in adopting digital technologies. This creates a critical gap between theoretical recognition of cultural value and its practical application in market contexts.

Heritage and Production Landscape in Lasem

A significant trading port on the northern coast of Java, Lasem is a historical site in the coastal town situated in Rembang Regency, Central Java, Indonesia. Javanese inhabitants have a rich history of dealing with Chinese immigrants throughout the centuries, which has contributed to the town's development and cultural heritage. The town's long history is clearly shown through its buildings, customs, and batik patterns. Batik production in Lasem is primarily carried out by small and medium enterprises, with traditional methods of production remaining labor-intensive. Most of the items are made at home. In Lasem, the batik industry is heavily dependent on family-run businesses and informal connections, which are a significant part of the local socio-economic structure. Even so, the use of a conventional production system presents difficulties in accommodating modern market conditions, such as digitalization and global competition. According to recent studies, heritage-based sites often encounter conflicts between preservation and innovation, with the challenge of maintaining cultural authenticity despite efforts to modernize (Akbulut et al., 2026; Dias et al., 2023). While this system preserves cultural authenticity, it presents challenges in adapting to digitalization and global competition. Previous studies indicate that heritage-based industries often face tensions between preservation and innovation (Satalkina & Steiner, 2020). Despite the lack of widespread adoption of digital marketing techniques, Lasem highlights the tensions present in other situations and evidence of gradual economic transformation. Mechanisms. This context necessitates the individualized delivery of interventions that are responsive to people's needs and not machine-driven. Local conditions while promoting innovation (Mahrinasari et al., 2024; Polyanskaya, 2024; Senanu et al., 2023). This context highlights the need for context-sensitive interventions that bridge traditional practices with digital innovation while remaining aligned with local socio-cultural conditions.

SMEs Development in Digital Communication, AI, and AR

The rise of digital communication technologies such as social media, advanced artificial intelligence, and other similar innovations has significantly transformed how people interact and share information. Augmented reality has significantly changed the way small and medium-sized enterprises develop their operations. Social media serves as a tool that helps in expanding the market, engaging with customers, and building relationships and brand narratives for SMEs (Aker et al., 2023; Pellegrino & Abe, 2023). Using advanced AI, content creation, such as promotional texts, images, and videos, is made more efficient by reducing resource usage (T. L. Huang & Chung, 2024; Rita et al., 2025). The integration of Immersive experiences using Augmented reality further supports immersive storytelling for cultural products, strengthening consumer engagement (Maria Correia Loureiro et al., 2025). The opportunities presented are insufficient in showcasing digital technologies to small and medium-sized enterprises, as well as lacking digital literacy, adequate infrastructure, and resistance to change. Literature on the functional advantages of these technologies has mainly been concentrated on their use in. Focus on culturally sensitive environments instead of looking into their practical uses. This underscores the significance of having a better understanding of digital transformation in the context of heritage industries. However, despite these technological advancements, many SMEs lack the capability to implement them effectively due to limited digital literacy, infrastructure constraints, and resistance to change. Existing literature has primarily focused on the functional benefits of these technologies, with insufficient attention to their *practical integration* in culturally sensitive environments such as heritage-based SMEs.

Contribution and purpose of Community Engagement Program

The focus of this community engagement program is on addressing the challenges faced by Batik Lasem SMEs by implementing participatory approaches that incorporate digital communication, GenAI, and augmented reality to strengthen sustainable branding. The Lasem Heritage Foundation launched the program; a group of 20 participants, comprising batik makers and representatives from local non-profits, is scheduled for February 2026. Focus group discussions and practical training sessions were conducted to examine the application of GenAI in promotional activities. Unlike conventional empirical studies, this article contributes by documenting the design, implementation, and outcomes of a practice-based intervention. Recent studies indicate that participatory approaches foster community empowerment, knowledge sharing, and sustainable development outcomes (Reed et al., 2023; Westerman, 2013). Even so, there is a dearth of empirical evidence to support the application of these techniques in digital transformation for cultural businesses. This study contributes to existing research by demonstrating that interventions led by academics can be beneficial; aligning local knowledge systems with

technological innovation helps to boost competitiveness while maintaining cultural authenticity (Mazzarella & Black, 2023; Saoualih et al., 2025; Satalkina & Steiner, 2020). In addition, the study highlights how participatory engagement can generate observable changes in participants' digital skills, branding awareness, and collaborative practices, thereby offering an initial basis for evaluating community-based digital transformation initiatives. By bridging local knowledge systems with technological innovation, this study contributes to the literature by demonstrating how community engagement can operationalize sustainable branding in heritage SMEs while maintaining cultural authenticity.

Conceptual Foundation And Programme Design

Sustainable Branding in Cultural and Heritage Products

Sustainable branding in cultural and heritage products refers to the strategic construction of market value in ways that preserve cultural authenticity, strengthen local identity, and generate long-term economic resilience. In heritage-based small and medium enterprises, branding goes beyond logos, slogans, or visual elements; promotional visuals should effectively convey the origin, symbolic significance, and genuine craftsmanship associated with the product forms that remain intelligible to wider markets. Recent studies have shown that cultural industries increasingly compete through the interaction of authenticity, digital communication, and adaptive market positioning rather than through price competition alone (Deb et al., 2026; Laradi et al., 2024). This literature has already demonstrated sustainability-focused branding can enhance differentiation, build customer trust, and increase competitiveness, especially when local identity is turned into clear and meaningful stories. However, much of this work still treats branding as a managerial capability or outcome variable, with limited attention to how heritage actors themselves manage the tension between preserving cultural heritage meaning and responding to contemporary market expectations (Eguia et al., 2025; Rahman et al., 2025; Rizkita et al., 2025).

This limitation is particularly important for Batik Lasem, where branding must simultaneously protect the symbolic integrity of the product and reposition it for digitally mediated markets. Existing studies have explored how sustainability, digital culture, and communication capability influence SME competitiveness, yet less is known about how sustainable branding is operationalized in community-facing interventions that involve artisans, local organizations, and academics working together. In other words, the literature has advanced the strategic rationale for sustainable branding, but it has not sufficiently examined how such branding can be strengthened through participatory community engagement in heritage settings. For a community service article, this gap is crucial because the contribution lies not in testing branding effects statistically, but in documenting how branding knowledge is translated into collective practice and local capability-building (Ramtohul & Khedo, 2024; Reed et al., 2023).

Participatory Community Engagement Model

Participatory community engagement is based on the idea that real change can only happen when people are actively involved. It emerges not from a top-down transfer of expertise but from co-creation, dialogue, and the active participation of all involved. Involvement of local actors in determining both the issues and the ways to address them. In higher education, this orientation is particularly important for community service activities because universities are expected to contribute not only by sharing knowledge but also by providing support through facilitation, mobilization, and empowerment. Recent scholarship has highlighted that participatory models strengthen local ownership, improve the relevance of interventions, and foster more durable forms of innovation because communities are positioned as co-producers rather than passive recipients (Majeed & Ramkissoon, 2022; Satalkina & Steiner, 2020). This literature has already established the importance of co-creation, inclusivity, and empowerment in community-based initiatives. However, much of it remains generic, often discussing broad institutional partnerships or sustainability transitions without showing how participatory processes unfold in small-scale cultural economies (Saoualih et al., 2025; Westerman, 2013).

For the present program, participatory engagement is not merely a method of delivery but the conceptual foundation of the intervention itself. The participation of batik artisans, local NGOs, and facilitators in shared discussions and practical experimentation reflects the view that branding and digital transformation cannot be

imposed externally. Instead, they must be locally negotiated in relation to heritage values, production realities, and collective aspirations. Previous research has rarely examined participatory engagement in the context of heritage SMEs seeking digital upgrading, and even fewer studies have connected university-led community service obligations with technology-enabled local empowerment. Accordingly, the present program responds to an underdeveloped area in the literature by showing how participatory engagement can function as a mechanism for strengthening both digital capability and community cohesion in a heritage-based production setting (Aaltonen et al., 2015; Depaoli et al., 2020).

Digital Communication and GenAI for SMEs

Digital communication has become essential for the growth of small and medium enterprises because it increases their reach and reduces costs. Communication expenses are reduced, allowing companies to build more consistent connections with their customers. In recent years, the literature has moved beyond viewing digital communication as a simple promotional channel and has instead conceptualized it as a broader socio-technical practice involving content creation, interaction management, analytics, and value co-creation (Marolt et al., 2022; Sabatini et al., 2023; Verhoef et al., 2021). At the same time, GenAI has introduced a new layer of possibility by simplifying the creation of captions, images, scripts, mock-ups, and short-form videos, thereby enabling smaller firms to produce more professional content with fewer resources. Existing research has already demonstrated that AI can provide support. Automation, personalization, and communication efficiency are particularly important in organizations that face time constraints. These elements help streamline processes, tailor interactions to individual needs, and ensure that information is shared effectively and quickly, ultimately supporting better performance and productivity and skill constraints (Huang & Rust, 2021; Kraus et al., 2022; Melo et al., 2023).

However, the literature has not completely answered an important question: how can SMEs use digital communication and GenAI in ways that enhance capability without flattening authenticity? Much of the current discussion remains centered on performance, adoption, or strategic potential, whereas the everyday integration of GenAI into culturally sensitive marketing work remains underexplored. This issue is especially salient in heritage sectors such as batik, where promotional content is not neutral but carries cultural meaning, identity claims, and aesthetic expectations. In the context of community engagement, digital communication and GenAI are therefore best understood not merely as efficiency tools, but as capacity-building instruments that can democratize content production if introduced through guided, context-sensitive practice. The conceptual value of the present program lies precisely in this point: it brings digital communication and GenAI into the domain of community empowerment rather than treating them solely as technological solutions (Laradi et al., 2024; Santos et al., 2025).

Augmented Reality for Cultural Promotion

Augmented reality has become more prominent as a tool that can improve storytelling, visual representation, and how consumers interact with heritage and tourism experiences. Unlike conventional digital communication, augmented reality allows adding an engaging layer that lets users interact with products, locations, and stories in a more dynamic and emotionally compelling manner. Recent studies indicate that AR can deepen authenticity perception, improve user experience, and strengthen narrative immersion in cultural and heritage settings (Maria Correia Loureiro et al., 2025; Zhu et al., 2023). This body of work has already examined how augmented reality enhances cultural interpretation, museum interaction, and the narration of heritage stories. It has also demonstrated that AR can act as a link between physical objects and digital stories, which makes it especially useful for products where value is based on history, symbolism, and visual aspects (Chatsiopoulou & Michailidis, 2025; De Paolis et al., 2023; Ramtohul & Khedo, 2024).

However, most of the existing research has mainly looked at tourism destinations, museums, and cultural sites, with much less focus on how augmented reality could help heritage-based small businesses and artisan communities. This is a significant oversight because products like batik are not just items for sale but also serve as carriers of cultural memory, historical motifs, and local identity. In this situation, augmented reality has the potential to enhance branding by enabling audiences to experience stories related to design elements, creation processes, symbolic meanings, and environmental values in a more engaging and lasting manner. The

significance of AR in the current program is not just due to its new technology but because of its potential to enhance the storytelling of cultural products. What remains insufficiently explored in prior research is how AR can be integrated into community engagement initiatives as a practical and participatory instrument, rather than as a purely consumer-facing innovation (Chen et al., 2025; Ramtohul & Khedo, 2024).

Program Framework and Logic Model

The program framework is designed as a logic-based community engagement model that connects inputs, activities, outputs, and expected outcomes in a coherent pathway of intervention. The inputs include academic knowledge, training resources, community collaborations, and technology-based tools. These inputs are translated into activities through focus group discussions and practical sessions on the use of GenAI in promotion. The immediate outputs include enhanced understanding of sustainable branding, improved familiarity with digital communication tools, and stronger interaction among community actors (Eguia et al., 2025; Satalkina & Steiner, 2020). The expected outcomes are broader and more strategic, namely the strengthening of sustainability-oriented identity, digital promotion capability, and artisan community cohesion. Recent scholarship on digital transformation, local capability-building, and heritage innovation supports the view that interventions are more effective when they are designed as integrated systems linking knowledge transfer, practical experimentation, and community ownership (Aaltonen et al., 2015; Purwati et al., 2026).

The framework illustrates (figure 1) the relationship between inputs (knowledge, resources, and digital tools), activities (focus group discussions and hands-on training), outputs (enhanced skills, branding capability, and interaction), and outcomes (digital capability, community cohesion, and sustainable branding).

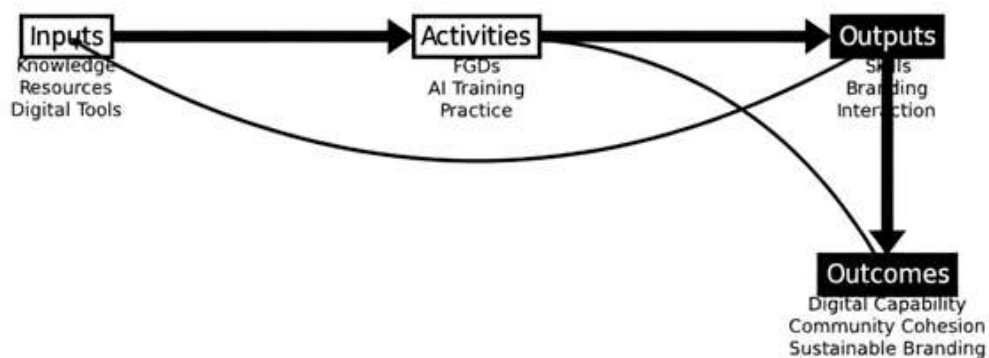


Figure 1. Illustration Model Framework

What has already been explored in previous studies is the importance of digital capability, ecosystem support, and cultural innovation for SME development. What has not been adequately developed is a program logic that shows how these elements can be sequenced in a community service setting, especially under the institutional obligation of Indonesian lecturers to undertake community engagement as part of the *Tridharma Perguruan Tinggi*. In this sense, the present framework contributes a practice-based model rather than a causal theory. The importance of this initiative is in showing how an academic community service project can transition from talking about ideas to putting them into practice, while making sure that using new technology stays tied to preserving culture and helping the community come together and gain power.

METHODOLOGY OF COMMUNITY ENGAGEMENT

Approach and Design of the Program

The program adopts a participatory and practice-based approach, positioning community members not as passive recipients but as active contributors in shaping the intervention. In the Indonesian higher education system, this approach is consistent with the *Tri dharma Perguruan Tinggi*, which mandates that academics convert knowledge

into practices that have social relevance. Contemporary literature on community engagement emphasizes that participatory design enhances relevance, ownership, and long-term sustainability of interventions, particularly when addressing complex socio-economic challenges. Instead of using a strict training model, the program. It was designed as an interactive learning space where participants could exchange experiences, express challenges, and work together to create solutions focused on digital marketing and sustainable branding (Satalkina & Steiner, 2020; Westerman, 2013).

This method shows a change in how engagement is handled, moving from just sharing knowledge to creating knowledge together. Existing studies have demonstrated that co-creation improves the contextual relevance of innovation and strengthens community capacity; however, these studies often remain at a conceptual level and provide limited insight into how participatory engagement is operationalized in small-scale cultural industries. In this program, the design focused on dialogue and experimentation. Through iterative learning, participants can adapt digital tools to their specific socio-cultural context. The methodological contribution lies in demonstrating how participatory engagement can be integrated with digital transformation initiatives in heritage-based SMEs, an area that remains underexplored in recent scholarship (Gaffar et al., 2022; Saoualih et al., 2025; Wolor et al., 2023). The quantitative indications presented are based on observational assessments and participation records during the training sessions, rather than formal statistical measurement.

Setting and Participants

The program was conducted at the Lasem Heritage Foundation on 7 February 2026, a location that serves as a cultural hub for batik artisans and heritage preservation initiatives in Lasem, Central Java. The choice of this location was intentional, as it serves as a meeting place for cultural activities, local engagement, and the preservation of historical traditions. A total of 20 participants were involved, who were batik artisans and representatives from local non-governmental organizations. These participants include a variety of individuals and groups involved in different stages of the batik industry, including production, promotion, and community development activities.

Recent literature on community-based development highlights the importance of engaging diverse stakeholders to ensure that interventions capture multiple perspectives and address real-world complexities (Dias et al., 2023; Eguia et al., 2025). However, many studies continue to use general stakeholder models without explaining how this diversity is handled in real situations. In the current program, the variety of participants was used as a valuable resource to promote group learning, enabling artisans, community leaders, and facilitators to share knowledge and work together to develop common approaches. This setting also shows how Lasem's socioeconomic conditions are shaped by the fact that batik making is part of local community connections rather than being organized through official structures. The program therefore serves as a practical example of how community involvement can be adapted to fit heritage-based production systems (Trencher et al., 2014; Verhoef et al., 2021).

Programme Activities

The implementation of the program consisted of two main components: Focus Group Discussions (FGDs) and hands-on training sessions on GenAI tools. The FGDs were designed to facilitate open dialogue among participants, enabling them to share experiences related to marketing challenges, digital adoption, and branding practices. This format allowed for the identification of common constraints and opportunities while also fostering mutual learning. The hands-on sessions focused on practical applications of GenAI, including the creation of promotional captions, visual content, and short-form videos using accessible digital tools (Melo et al., 2023; Wijaya & Moko, 2026).

The integration of discussion and practice reflects current recommendations in community engagement literature, which emphasize experiential learning and active participation as key drivers of skill development and behavioural change. While earlier research has pointed out the possibility of many small and medium-sized enterprises focusing on digital tools and artificial intelligence but tending to neglect the value of structured guidance in achieving real integration and effective use. This program combined FGDs with practical sessions to ensure participants gained a clear understanding of the importance of digital marketing concepts and built the

confidence to apply them in their own situations. This dual structure tackles a significant omission in existing research, as training interventions are often described but seldom examined in terms of their teaching methods and real-world effectiveness (Stock & Stock, 2024; Westerman, 2013).

Materials and Training Modules

The materials delivered in the program were structured around three main themes: sustainable promotion models, AI-assisted marketing, and community empowerment strategies. The sustainable promotion module taught participants how to connect brand identity with genuine cultural values and build lasting value over time. The AI-assisted marketing module provided practical guidance on using GenAI tools to produce digital content efficiently. The community empowerment module highlighted the significance of working together, exchanging knowledge, and creating connections among artisans (Marolt et al., 2022; Sabatini et al., 2023).

The hands-on training sessions introduced participants to practical digital tools, including ChatGPT for caption generation, SUPA AI for visual content design, and basic augmented reality applications for storytelling. Participants were guided to create promotional materials such as social media captions, visual branding assets, and simple AR-based storytelling concepts, ensuring that the training was directly applicable to their business activities.

Recent research suggests that effective capacity-building programs integrate conceptual understanding with practical skills and social learning processes. However, a significant portion of the current research emphasizes the development of capabilities at the firm level rather than on training programs that are based within community contexts. In contrast, the current program shows how training modules can be tailored to meet the needs of small and medium enterprises in the heritage sector by integrating technical expertise with cultural awareness. The materials were created with accessibility and relevance in mind, so that individuals could easily connect the content to their everyday work and use it right away in their routine activities. This shows how crucial it is to adapt training materials to specific local circumstances, which is still not adequately covered in typical digital transformation approaches (Laradi et al., 2024; Purwati et al., 2026).

Program Reflection and Evaluation Approach

Given that this article is based on a community engagement program, the evaluation combines reflective insights with structured observational assessment rather than relying solely on formal statistical analysis. To strengthen the analytical rigor, the evaluation incorporated a simple before after assessment approach based on participant observation, engagement tracking, and output analysis during the training sessions. The effectiveness of the intervention was evaluated based on observations of how participants interacted, the feedback they provided during discussions, and the results they produced right after the practical sessions. This approach aligns with recent literature that recognizes reflective evaluation as a valid method for assessing community-based initiatives, particularly when the goal is to capture experiential learning and contextual impact (Saoualih et al., 2025; Trencher et al., 2014).

Specifically, indicators such as participants' understanding of sustainable branding, ability to create digital content, use of AI tools, and level of participation were assessed by comparing initial conditions (prior to the training) and observed outcomes during and after the intervention. The quantitative indications presented in this study are derived from structured observations, facilitator notes, and participant outputs (e.g., generated content and discussion contributions), rather than formal survey instruments or statistical testing. This approach aligns with recent community engagement research that recognizes observational and practice-based evaluation as valid methods for capturing learning outcomes and behavioural changes in small-scale interventions. The results of this structured assessment are summarized in Table 1, which presents a comparative overview of participant outcomes before and after the program

While traditional research focuses on measurable results, community engagement needs a more adaptable way of evaluating success that considers progress in areas like greater awareness, learning new skills, and building stronger community connections. Existing research has pointed out the importance of these alternative assessment methods but has not given much help on how to put them into practice effectively. The current

program adds value to this conversation by showing how reflective evaluation can be included in engagement activities without reducing the quality of the work. This approach is particularly relevant for academic community service initiatives in Indonesia, where the emphasis lies on societal impact and knowledge application rather than hypothesis testing (Verhoef et al., 2021; Wolor et al., 2023). While this approach does not aim to establish causal relationships, it provides indicative evidence of changes in participants' capabilities, awareness, and engagement, thereby enhancing the credibility and analytical depth of the study.

OUTCOMES AND DISCUSSION

Strengthening Sustainable Branding Identity

The program contributed to a strengthening of participants' understanding of sustainability-oriented branding, particularly in relation to cultural authenticity and long-term value creation. Participants began to reinterpret batik not merely as a commercial product but as a cultural artifact requiring consistent narrative framing and symbolic coherence in digital markets. Participants began to reinterpret batik not merely as a commercial product but as a cultural artifact requiring consistent narrative framing, symbolic coherence, and ethical positioning in digital markets. This change was reflected in participants' ability to articulate brand narratives more clearly during discussions and practical sessions, where most participants were able to develop culturally grounded storytelling concepts for their products.

This shift reflects the broader argument in recent literature that sustainable branding in cultural industries must integrate authenticity, storytelling, and strategic differentiation to remain competitive. This finding aligns with literature emphasizing the integration of authenticity, storytelling, and differentiation in sustainable branding (Laradi et al., 2024). However, the results also indicate that participants experienced tension between preserving authenticity and adapting to digital market expectations, suggesting that branding capability evolves through iterative learning rather than immediate adoption.

However, the results also show a continuing conflict between keeping things genuine and adjusting to the needs of the digital marketplace. Previous research has highlighted the significance of sustainable branding as a strategic factor, but it has not focused much on how artisans themselves adopt and implement such branding practices. The present engagement shows that sustainable branding is not simply adopted as a managerial concept but negotiated through collective reflection and experiential learning. This insight extends the literature by illustrating that branding capability in heritage SMEs emerges from social interaction and shared understanding rather than individual firm-level strategy alone (Rizkita et al., 2025).

Digital Communication Enhancement among SMEs

Participants demonstrated improved confidence and capability in utilizing digital communication platforms, particularly social media, for promotion and customer engagement. Participants applied tools such as ChatGPT to generate structured captions and SUPA AI to design visual content, resulting in more consistent and professional promotional materials.

During the training sessions, participants were able to produce structured promotional content, including captions and visual concepts, indicating a practical improvement in digital communication skills. Through guided practice, participants gained the skills to develop structured content, refine captions for better effectiveness, and ensure that their visual presentations match the brand's overall storytelling and identity. This aligns with recent findings that digital communication is increasingly embedded in everyday business practices and plays a critical role in shaping SME competitiveness. This supports previous findings that participatory and practice-based approaches make digital communication more accessible for SMEs (Reed et al., 2023; Saoualih et al., 2025). Nevertheless, the level of improvement varied among participants due to differences in prior digital literacy, indicating that digital capability development is uneven and requires continuous support.

Despite this, the results also show that the use of digital communication tools is not the same for everyone involved, mainly because people have different levels of experience and self-confidence with these tools. Existing studies have thoroughly covered the advantages of digital marketing, but they usually start with the idea

that people already have a certain level of knowledge about digital tools, which might not be the case in local or community environments. The current results show that the ability to communicate digitally should be seen as something that develops over time, not as a fixed or unchanging tool. By placing digital communication within a community engagement context, the program helps develop a better understanding of how digital practices are slowly becoming part of heritage-based small and medium-sized enterprises (Kraus et al., 2022; Sabatini et al., 2023).

Adoption of GenAI in Marketing Practices

The use of GenAI tools improved participants' capacity to create promotional content more efficiently, including captions, visual ideas, and storytelling formats. Most participants were able to generate AI-assisted content during hands-on sessions, demonstrating immediate usability of the tools despite limited prior experience. The use of ChatGPT enabled participants to quickly produce caption drafts, while SUPA AI supported the creation of visual branding elements. Some participants also explored simple AR concepts to enhance storytelling of batik motifs (table 1).

Tabel 1. Tools GenAI

Indicator	Tools Used
Content creation	ChatGPT, SUPA AI
Visual design	SUPA AI
Storytelling	AI + AR tools

Participants could create captions, develop visual ideas, and try out different storytelling methods that typically need advanced technical expertise. This supports existing literature suggesting that AI can lower barriers to entry, improve productivity, and enable SMEs to engage more effectively in digital marketing activities. This supports existing literature that AI reduces barriers to entry and enhances marketing productivity (Rita et al., 2025). However, the findings also highlight concerns regarding over-reliance on AI, particularly the risk of reducing cultural authenticity in batik storytelling. This suggests that AI adoption in heritage SMEs requires guided and context-sensitive implementation.

However, the results also bring up important concerns about how well efficiency is balanced with authenticity. Although GenAI speeds up the creation of content, there is a danger that too much dependence on automated outputs could weaken the unique cultural elements of batik stories. Previous research has mostly concentrated on the benefits of AI in terms of performance, but it has not paid much attention to how AI affects cultural representation and authenticity. The current situation indicates that the use of AI in heritage sectors needs to be managed carefully so that the benefits of technology do not weaken the cultural significance of these industries. This contributes significantly to existing research by emphasizing the need for careful consideration of context when implementing AI in cultural economic settings (Pellegrino & Abe, 2023).

Community Empowerment and Collaborative Learning

The program strengthened community connections and facilitated collaborative learning among participants through participatory engagement. This was evident in the active exchange of ideas during focus group discussions and joint development of promotional strategies, indicating increased interaction and knowledge sharing among artisans. The participatory format allowed artisans, community members, and facilitators to share knowledge, discuss experiences, and work together to think about the challenges and opportunities they faced. This outcome is consistent with recent scholarship emphasizing that participatory engagement fosters empowerment, enhances social capital, and supports sustainable innovation in community-based settings. These findings align with literature highlighting that participatory approaches enhance empowerment and social capital (Phillips et al., 2015). However, the results also indicate that community empowerment is an ongoing process, as sustaining collaboration requires continued engagement beyond the program duration.

At the same time, the findings suggest that community empowerment is an ongoing process rather than a one-time outcome. While the program facilitated initial connections and shared understanding, sustaining these networks requires continued engagement and institutional support. Existing literature has acknowledged the importance of collaboration but has not sufficiently addressed how such collaboration can be maintained beyond short-term interventions. The present study contributes to this gap by showing that participatory engagement can initiate empowerment, but its long-term impact depends on follow-up activities and the institutionalization of collaborative practices (Akbulut et al., 2026).

Challenges and Lessons Learned

Despite positive outcomes, the program faced challenges including differences in digital skills, limited access to technology, and initial resistance to adopting new tools. These challenges were observed during training sessions, where some participants required additional guidance and more time to complete digital tasks compared to others.

These challenges are consistent with findings in the literature on digital transformation in SMEs, which highlight structural barriers such as skill gaps, resource constraints, and organizational inertia. This confirms that digital transformation in SMEs is not only a technical issue but also a social and cultural process shaped by attitudes and readiness (Eguia et al., 2025). The findings suggest that effective interventions should combine technical training with trust-building, contextual adaptation, and gradual learning processes to ensure sustainable adoption of digital tools.

A key takeaway from the program is that effective interventions need to focus on both the ability to perform and the attitude or thinking that supports it. While training can help enhance technical abilities, overcoming resistance involves creating trust, showing clear advantages, and ensuring that the use of technology fits with how people already work. Previous research has recognized these challenges but has usually focused on them from the perspective of management or policy. The current study broadens this understanding by showing how these challenges appear in a community engagement setting and how they can be managed through involving people and considering the specific context. This supports the idea that digital transformation in heritage small and medium enterprises should be handled in a comprehensive way, combining technology, culture, and social aspects (Marolt et al., 2022).

To enhance the robustness of the evaluation, a structured comparison of participant outcomes before and after the program is presented in Table 2, based on observational records and training outputs.

Tabel.2. Observational Records and Training Outputs

Indicator	Before Program	After Program	Change (%)	Evidence/Observation
Understanding of sustainable branding	6 participants (30%) demonstrated basic understanding	17 participants (85%) demonstrated clear understanding	+55%	Participants could explain cultural storytelling and branding concepts during discussion
Ability to create structured digital content	5 participants (25%) able to create basic content	16 participants (80%) able to create structured captions and visuals	+55%	Outputs produced during hands-on training
Active use of social media for marketing	7 participants (35%) used social media irregularly	15 participants (75%) used social media more strategically	+40%	Observed through practice sessions and content planning

Use of GenAI tools	2 participants (10%) had prior exposure	14 participants (70%) able to use AI tools for content creation	+60%	AI-generated captions and ideas during training
Confidence in digital communication	8 participants (40%) showed low-moderate confidence	16 participants (80%) showed improved confidence	+40%	Increased participation in exercises and discussions
Collaboration and knowledge sharing	9 participants (45%) engaged minimally	18 participants (90%) actively participated in discussions	+45%	Active engagement in FGDs and group activities
Awareness of digital challenges and opportunities	10 participants (50%) had limited awareness	18 participants (90%) demonstrated clearer understanding	+40%	Reflected in group reflections and discussions

IMPLICATIONS AND CONCLUSION

Challenges Practical Implications for SMEs Development

The program demonstrates that effective community engagement for cultural SMEs should integrate cultural interpretation, digital capability development, and participatory learning rather than focusing solely on technical training. Sustainable branding in heritage-based SMEs becomes meaningful when digital communication is aligned with cultural authenticity and local narratives. Empirical studies indicate that SMEs achieve stronger performance when digital marketing is embedded within organizational routines and supported by relational capabilities and adaptive creativity (In the Indonesian context, this integration is especially important because SMEs often struggle to convert cultural values into digital visibility. Evidence from Indonesian SMEs further shows that digital transformation requires structured facilitation and continuous learning rather than isolated interventions (Gaffar et al., 2022). The integration of accessible tools such as ChatGPT and SUPA AI demonstrates that digital transformation in heritage SMEs can be achieved through low-cost and user-friendly technologies.

In addition, the program emphasizes the role of artisans as key contributors to the creation of branding stories. Digital engagement in cultural industries goes beyond just using technology; it's about creating meaningful portrayals of heritage that connect with today's audiences. Prior research suggests that consumer engagement in digital environments is shaped by sequential processes of attention, search, action, and sharing, implying that SMEs must strategically design their communication flows rather than simply maintain an online presence (Suhud et al., 2023). Complementary insights from INTI-affiliated research emphasize that SME digital capability development is most effective when it combines experiential learning with context-sensitive adaptation (Depaoli et al., 2020). Therefore, future training programs for SMEs should include narrative development, visual storytelling, and continuous experimentation with content as essential elements.

Policy Implications for Cultural and Creative Industries

The findings suggest that policy frameworks for cultural and creative industries should move beyond financial support and instead focus on building sustainable digital ecosystems. Digital transformation in SMEs is often constrained by capability gaps, limited infrastructure, and weak institutional linkages. Therefore, policy actions should focus on long-term efforts to build capacity, such as ongoing training, mentoring programs, and cooperation among universities, government bodies, and local communities. In the framework of Indonesia's

Tridharma Perguruan Tinggi, universities serve a crucial role as intermediaries of knowledge, helping to promote the adoption of technology while maintaining cultural values (Melo et al., 2023).

Furthermore, policy must recognize that heritage-based SMEs operate within symbolic and cultural economies, where authenticity, sustainability, and trust are critical determinants of competitiveness. Studies by Suhud and colleagues demonstrate that sustainability perceptions, destination credibility, and image significantly influence behavioral intention in place-based contexts (Wibowo et al., 2019). These findings imply that policy support should integrate cultural branding with sustainability narratives and digital innovation. Additional insights from INTI research underline that policy-driven digital initiatives are more effective when they incorporate local knowledge systems and community participation. Therefore, policies should involve providing financial support for digital storytelling, initiatives to improve understanding of artificial intelligence, and experiences using immersive technologies like augmented reality so that small and medium-sized cultural businesses are integrated into wider efforts for sustainable development rather than being seen as separate economic entities.

Theoretical Contribution to Community Engagement Literature

This article adds to existing knowledge by understanding community engagement as an ongoing interaction between cultural practices, changes in digital technology, and methods of active learning. While previous studies have emphasized the importance of co-creation, inclusivity, and local empowerment in community engagement, limited attention has been given to how these processes unfold within cultural production contexts. The current research builds on existing discussions by showing that involving stakeholders in the process can help create shared understanding of branding and digital skills within small and medium-sized enterprises that are based on cultural heritage (Setiawati et al., 2024).

In addition, the study adds to the growing area where digital transformation meets cultural industries. Existing studies have mostly concentrated on strategies at the company level or results related to consumers, but this article emphasizes the importance of community-based actions as factors that help bridge the gap. Supporting evidence from the attached studies indicates that digital behaviour is increasingly shaped by technological integration, with consumers acting as “cyborg” actors whose experiences are mediated by digital tools (Suhud et al., 2023). At the same time, community adaptation to technological change remains deeply embedded in local cultural contexts (Wolor et al., 2023). Complementary INTI-based research further suggests that participatory innovation enhances knowledge diffusion and local resilience in SME ecosystems. When combined, these viewpoints highlight community involvement as a mixed process that blends the use of technology with the preservation of cultural traditions, thus improving the theoretical knowledge about engagement within heritage sectors.

Limitations of the Programme

Several limitations should be acknowledged in interpreting the findings of this study. The program was conducted within a specific cultural and geographical context and involved a relatively small number of participants ($n = 20$). While this enabled in-depth interaction, it limits the generalizability of the findings to other regions or sectors. A key limitation lies in the evaluation approach. The assessment relied primarily on structured observation, participant engagement, and output analysis rather than formal quantitative measurement or statistical testing. As a result, the findings provide indicative rather than statistically generalizable evidence of change. Although before–after comparisons were incorporated to strengthen the analysis, these were based on observational records rather than standardized instruments, which may introduce subjectivity and limit measurement precision.

Although this approach enabled detailed interaction, it restricts the ability to apply the results to different areas or sectors. In addition, the short-term nature of the intervention means that the results mainly capture immediate changes in knowledge, skills, and attitudes rather than sustained behavioral transformation over time. The absence of longitudinal follow-up limits the ability to assess whether improvements in digital capability and branding practices are maintained or translated into measurable business performance. Previous studies emphasize that digital capability development in SMEs is a gradual process requiring sustained support and iterative learning (Laradi et al., 2024; Ramtohul & Khedo, 2024).

Another limitation is that the article is based on practical applications. Furthermore, as a community engagement report rather than a fully empirical study, the analysis is interpretive and does not aim to establish causal relationships between intervention and outcomes. While this approach provides valuable insights into real-world implementation, it also reflects a trade-off between contextual depth and methodological rigor. Nevertheless, this approach offers useful insights into how digital transformation is experienced and managed in real-life situations. Supporting evidence from Indonesian and regional studies indicates that SME transformation is inherently context-dependent and influenced by local adaptation processes (Wolor et al., 2023). Insights from INT Research also suggests that short-term interventions can serve as catalysts for longer-term innovation if followed by sustained engagement (Setiawati et al., 2024). Therefore, although the program has certain limitations, it offers a solid basis for future growth and improvement. Despite these limitations, the study offers meaningful contributions by documenting how digital transformation can be facilitated in heritage SMEs through participatory engagement, providing a foundation for more rigorous future research.

Future Directions for Community-Based Innovation

Future initiatives should adopt longitudinal and multi-phase engagement models to ensure sustainability and scalability of digital transformation in heritage SMEs. Future research should incorporate more robust evaluation methods, including standardized assessment tools, mixed-method approaches, and longitudinal tracking to measure long-term impacts on digital capability and business performance. Continuous mentoring, iterative learning processes, and regular assessment are essential to embed digital capabilities into everyday business practices. Future programs should also integrate practical digital tools such as GenAI platforms for content creation and augmented reality applications for storytelling within structured training and follow-up activities to ensure sustained adoption. Embedding digital capabilities into the everyday operations of small and medium-sized enterprises is essential for integrating technology effectively into their workflows. This ensures that digital tools are seamlessly incorporated into routine tasks, enhancing efficiency and supporting long-term growth. Research highlights that digital transformation evolves through cumulative learning processes rather than immediate adoption (Akbulut et al., 2026; Reed et al., 2023). Therefore, future initiatives should include follow-up actions, peer learning groups, and collaborative tools that help share knowledge between different communities.

In addition, integrating cultural SME development with sustainable tourism and digital ecosystems remains an important direction. Positioning Batik Lasem within broader digital storytelling ecosystems can enhance both cultural visibility and economic resilience, particularly when supported by collaborative platforms and cross-sector partnerships. Batik Lasem should be presented not just as a product but as an integral part of a wider heritage story that encompasses local identity, the tourism experience, and messages about sustainability. Empirical evidence shows that sustainability, credibility, and destination image jointly influence behavioural intention in place-based contexts. Complementary findings from INTI research suggest that integrating digital innovation with cultural ecosystems enhances both economic value and community resilience (Purwati et al., 2026). Therefore, future programs should combine artisan empowerment with digital storytelling platforms, augmented reality experiences, and collaborative branding strategies that position cultural SMEs within integrated sustainable development frameworks. Overall, future research should move beyond short-term interventions toward scalable, evidence-based models that combine technological innovation, cultural preservation, and community empowerment.

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