

COLLABORATIVE SYNERGY TO BUILD A NEW ERA OF SUSTAINABLE TOURISM THROUGH DIGITALIZATION: A REAL COLLABORATION MODEL OF TOURISM INDUSTRY ACTORS IN CENTRAL JAVA

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ABSTRACT

The tourism industry is now facing major changes, driven by three key shifts: tourists increasingly rely on digital information, there is growing pressure for sustainable tourism, and visitors expect more meaningful, experience-based activities. Purpose, this community service program aims to build real collaboration among tourism industry actors through digitalization, establish a bottom-up pentahelix trigger, and implement integrated strategies of digital presence, engagement, distribution, and conversion to support sustainable tourism development. Methods, the program employed an action-based collaboration approach through the following stages: (1)socialization on the new era of tourism and Experience Economy 2.0, (2)training on digital tourism strategies, (3)facilitation of concrete collaboration among tourism businesses, (4)assistance in implementing a shared digital platform and bundled products, and (5)evidence-based monitoring for informed decision-making. Results, the program successfully fostered real collaboration among industry actors, producing several key outputs: a shared event calendar, cross-destination bundled packages, an integrated marketing platform, standardized service quality guidelines, and cross-stakeholder human resource training. These initiatives contributed to increased tourist visits, higher occupancy rates, and improved revenue, as supported by measurable data. Conclusion, Real collaboration among tourism industry actors can effectively activate the pentahelix ecosystem. When businesses take evidence-based actions, stakeholders Digitalization plays a key role not only in promotion but also in enabling stronger collaboration. These findings show that sustainable tourism is achieved through practical cooperation and joint action, not just through conceptual ideas or slogans.

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INTRODUCTION

The tourism industry currently stands at a transformative juncture, shaped by three major shifts that are fundamentally restructuring the business landscape (Dredge, 2022; Rodrigues et al., 2024). First, a behavioral transformation has occurred among tourists, who now fully integrate digital experiences into their decision-making processes. Contemporary travelers seek reviews on Google, TikTok, Instagram, Traveloka, and Agoda; read ratings and guest comments; examine real photographs and videos from previous visitors; and compare prices and facilities across service providers. This wealth of digital information has become the primary determinant of travel choices (Setiawan et al., 2018). Second, there is a heightened demand for sustainable tourism that encompasses environmental, social, and economic dimensions (Widianti, 2020). Tourism is no longer simply about selling destinations; it must now guarantee long-term positive impacts on ecosystem preservation and local communities (Darmina Wandik et al., 2025). Third, there has been a paradigmatic shift in tourist perception—from merely "seeing" to "experiencing" and ultimately "participating" (Bui et al., 2025; Pritchard et al., 2011). These three dynamics collectively demonstrate that tourism transformation depends not only on technological innovation but also on the capacity of all stakeholders to adapt through structured, sustainability-oriented collaboration (Widianti, 2022).

To date, there remains a scarcity of implementable models demonstrating how digital collaboration can be practically applied at the level of business operators, particularly in the artificial tourism sector, which possesses distinct characteristics compared to nature-based destinations (Seraj et al., 2025). The emergence of Experience Economy 2.0 has shifted the paradigm: people no longer merely purchase hotel rooms or admission tickets; they are purchasing stories, emotions, and experiences. Staycation concepts centered on local culinary, cultural, and socially shareable experiences have become the primary preference of contemporary tourists (Kusumadewi et al., 2023). These transformations compel all stakeholders—including government, associations, hotels, destinations, and micro, small, and medium enterprises (MSMEs) not merely to adapt, but to synergize in creating a more resilient, relevant, and long-term impactful tourism ecosystem (Bratić et al., 2025; Rodrigues et al., 2024).

Nevertheless, field realities reveal a significant gap between the conceptual ideal and the actual implementation of pentahelix collaboration. Despite being theoretically positioned

as an optimal framework for building multi-stakeholder synergy, its execution remains frequently suboptimal. Many collaborative initiatives stall at the level of discussion and ceremonial commitments, failing to produce concrete actions with direct impact on industry actors. Inter-stakeholder coordination is often impeded by divergent interests, underdeveloped communication structures, and inadequately synchronized sectoral roles. Furthermore, several policies and support programs have not been sufficiently responsive to the practical needs of business operators on the ground, resulting in collaborative efforts that fall short of producing sustainable outcomes. This condition underscores the urgent need for a more applicative, evidence-based, and action-oriented approach to bridge the gap between theory and practice in sustainable tourism development.

Perhimpunan Usaha Taman Rekreasi Indonesia (PUTRI), or the Indonesian Association of Recreational Parks and Tourism Destinations, is the national association of entrepreneurs in the recreational parks and tourism destination sector. The Regional Executive Board (DPD) PUTRI Central Java oversees various artificial tourism destinations, including recreational parks, waterparks, theme parks, agro-tourism sites, educational tourism attractions, and modern tourism facilities distributed throughout Central Java Province. DPD PUTRI Central Java members possess significant potential to serve as the driving force for collaborative tourism development. However, like similar organizations elsewhere, these members continue to face persistent challenges: business fragmentation accompanied by unhealthy competition, insufficient understanding of effective digitalization practices, limited concrete collaboration among members, and an absence of synergy capable of producing measurable impact.

Artificial tourism destinations possess unique characteristics compared to natural tourism destinations: they are more reliant on innovation and creativity, require substantial infrastructure investment, demand aggressive marketing strategies to attract visitors, and must continuously introduce new experiences to maintain visitor interest. However, this potential remains underutilized due to limited access to digitalization knowledge, insufficient capital for technology investment and promotion, and the absence of structured collaboration platforms. Competition among recreational parks and artificial destinations often devolves into a zero-sum game characterized by price undercutting, unclear differentiation, and contested customer bases. Yet, through strategic collaboration, artificial tourism destinations could complement

one another, create tourism circuits that extend visitor length of stay, and elevate Central Java's brand as a premier artificial tourism destination in Indonesia.

This community service program was specifically designed for industry practitioners with the guiding philosophy: "When recreational park business actors collaborate solidly and mobilize the ecosystem with tangible evidence, the pentahelix will follow. But if they wait, it will forever remain only a slogan." This bottom-up approach positions artificial tourism destination operators as the trigger for change, rather than passive recipients of top-down policies. A successful collaboration model at DPD PUTRI Central Java can serve as a best practice replicable by similar operator communities across other provinces throughout Indonesia, creating a national movement of solid and impactful recreational park and tourism destination collaboration.

LITERATURE REVIEW

Sustainable Tourism: Conceptual Foundations and Evolving Frameworks

Sustainable tourism has emerged as one of the most extensively debated and theoretically refined concepts within tourism studies over the past three decades. The foundational definition advanced by the World Tourism Organization (UNWTO) characterizes sustainable tourism as tourism that fully accounts for its current and future economic, social, and environmental impacts, addressing the needs of visitors, the industry, the environment, and host communities (World Tourism Organization, 2018). This three-dimensional framework encompassing environmental, socio-cultural, and economic sustainability has since become the dominant lens through which scholars, policymakers, and practitioners evaluate tourism development trajectories.

The concept gained substantial traction following the Brundtland Report (1987), which defined sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Applied to tourism, this principle demands that destination development balance economic viability with ecological integrity and social equity (Priem & Butler, 2001). Subsequent scholarship has sought to operationalize this tripartite framework through indicator systems, certification programs, and governance models (Cottafava et al., 2022).

Contemporary scholarship, however, has increasingly critiqued the static nature of early sustainability frameworks, arguing that they fail to account for the dynamic, complex, and

adaptive characteristics of tourism systems (Đurić et al., 2025a; Sharma et al., 2025). Resilience theory has emerged as a complementary perspective, emphasizing the capacity of tourism ecosystems to absorb shocks, adapt to change, and reorganize while retaining essential functions. Within this context, collaborative governance wherein multiple stakeholders jointly design and implement sustainability strategies as been identified as a critical enabler of destination resilience.

In the Indonesian context, sustainable tourism development has been linked to the empowerment of local communities and the preservation of cultural heritage, particularly in regions with high biodiversity and rich ethnographic traditions (Widianti, 2020). Has demonstrated that when local communities are positioned as active agents rather than passive beneficiaries of tourism development, outcomes in terms of livelihood improvement, cultural continuity, and environmental stewardship are significantly more durable (Darmina Wandik et al., 2025). The present study extends this body of literature by examining how digitalization can function as an instrument of sustainable tourism governance, particularly within the artificial or constructed tourism sub-sector.

Digitalization in Tourism: The Four-Pillar Framework

The digital transformation of the tourism sector has been extensively documented across multiple scholarly disciplines, including information systems, marketing, hospitality management, and economic geography. Scholars broadly agree that digitalization in tourism entails not merely the adoption of specific technologies, but a systemic reconfiguration of how tourism products are created, distributed, experienced, and evaluated (Buhalis et al., 2020; Elia et al., 2024). Building upon these theoretical foundations, the present study adopts a four-pillar framework for conceptualizing digital tourism strategy: Digital Presence, Digital Engagement, Digital Distribution, and Digital Conversion. This framework synthesizes insights from digital marketing theory (Agustian et al., 2023; Elia et al., 2024), tourism information systems research (Buhalis et al., 2020), and recent empirical studies on tourism digitalization in Southeast Asia (Singgalen, 2024; Tandafatu et al., 2024).

Digital Presence constitutes the foundational layer of digital tourism strategy, referring to the systematic cultivation of a discoverable, accurate, and compelling online identity for a tourism destination or business. (Benyon et al., 2014) demonstrated that high online visibility not only facilitates tourist access to destination information but also shapes pre-visit

expectations and satisfaction levels. The optimization of Google Business Profiles, Online Travel Agency (OTA) listings, and social media accounts has been identified as a prerequisite for competitive participation in the contemporary tourism marketplace (Agustian et al., 2023).

Digital Engagement encompasses the quality and depth of interactions between tourism stakeholders and their digital audiences. (Singgalen, 2024) employed sentiment analysis and toxicity modelling to demonstrate that high-quality digital content—characterized by authenticity, visual appeal, and narrative coherence—generates significantly stronger positive sentiment and higher engagement rates. Engagement is not merely a promotional metric; it functions as a mechanism for building trust, co-creating destination narratives, and fostering emotional attachment between tourists and places .

Digital Distribution addresses the channels through which tourism products and services are made accessible and transactable in digital environments. The proliferation of OTAs, meta-search engines, and direct booking platforms has fundamentally restructured the tourism distribution landscape, reducing intermediary dependency and enabling more direct relationships between suppliers and consumers (Buhalis et al., 2020). (Tandafatu et al., 2024) documented that technology integration in the booking process enhances not only operational efficiency but also tourist satisfaction, as it reduces friction in the purchase journey.

Digital Conversion represents the terminal objective of digital tourism strategy: the transformation of digital awareness and engagement into concrete economic activity. (Kurolov et al., 2025) applied data-driven marketing analytics to demonstrate that systematic measurement of conversion funnels tracking the journey from initial digital exposure to confirmed booking enables tourism businesses to identify and eliminate drop-off points, optimize promotional investments, and improve overall revenue performance. The integration of analytics tools into destination management practices is therefore not optional but constitutively necessary for evidence-based tourism governance.

The cumulative evidence suggests that digital transformation in tourism is most effective when approached holistically treating presence, engagement, distribution, and conversion as interdependent and mutually reinforcing dimensions of a unified strategy, rather than as isolated tactical interventions (Elia et al., 2024). This integrated perspective informs the design and evaluation of the community service program documented in the present study.

The Pentahelix Collaboration Model: From Conceptual Framework to Operational

Reality

The pentahelix model of innovation and collaboration represents an extension of the earlier triple helix (Đurić et al., 2025b) and quadruple helix frameworks. While the triple helix identifies government, industry, and academia as the three primary actors in innovation ecosystems, and the quadruple helix incorporates civil society as a fourth dimension, the pentahelix adds media and creative industries as a fifth constitutive element. In the context of tourism, the pentahelix framework has been applied to model the collaborative dynamics among government agencies, tourism industry actors, academic and research institutions, local communities, and media organizations. Scholars have argued that sustainable tourism development requires the active and coordinated participation of all five actor categories, as each contributes distinctive knowledge, resources, legitimacy, and capacities that no single actor can replicate (Bratić et al., 2025).

Empirical studies of pentahelix implementation in tourism, however, have consistently identified a substantial gap between the theoretical ideal of integrated multi-stakeholder collaboration and its practical operationalization. Coordination failures are frequently attributed to divergent institutional logics, asymmetric power relations, inadequate communication infrastructure, and a lack of shared metrics for evaluating collaborative outcomes (Rodrigues et al., 2024). In the Indonesian context, pentahelix collaboration in tourism has been hampered by vertical governance structures that concentrate decision-making authority in government agencies, leaving industry actors and communities as passive recipients of policy rather than active co-designers.

The present study addresses this implementation gap by proposing and testing a bottom-up activation model, wherein industry actors specifically members of DPD PUTRI Central Java unction as the primary initiators of pentahelix collaboration rather than awaiting top-down coordination. This approach aligns with recent scholarship emphasizing the importance of hybrid governance arrangements that combine elements of hierarchical coordination, market mechanisms, and networked collaboration (Abdalla et al., 2025). The principle of "industry as trigger, pentahelix as enabler" operationalizes this theoretical insight in a specific regional context, providing a potentially replicable model for other tourism associations.

SOLUTIONS AND TARGETS

This community service program was designed to address the gap between the collaborative needs of the artificial tourism industry and the weak implementation of digital cooperation in practice. The model developed is action-oriented and positions business actors operating under DPD PUTRI Central Java as the primary drivers. Its foundational philosophy holds that when business actors move with concrete evidence, pentahelix collaboration will follow organically; however, if initiatives await top-down direction, the ecosystem development process will stagnate. This approach affirms that digital transformation and collaboration can only be realized through structured steps rooted in the needs and capacities of industry practitioners.

The solutions offered encompass five strategic components. First, digital capacity strengthening through training and mentoring across the four digital pillars: presence, engagement, distribution, and conversion. Second, the establishment of an industry collaboration platform enabling unified communication, resource sharing, and the execution of joint campaigns. Third, mentoring in data-driven digital content development and marketing strategy, along with storytelling approaches to strengthen destination branding. Fourth, the development of a bottom-up collaboration model replicable by similar associations in other provinces. Fifth, the formulation of a joint action plan as tangible evidence of industry collaboration commitment.

Program activities include workshops on digital presence and branding for all PUTRI members; mentoring for strategic content creation encompassing photography, short videos, storytelling narratives, and review management; training on the utilization of digital distribution channels such as OTAs, booking websites, and direct booking platforms. Additionally, the program incorporates data analytics simulations to optimize digital conversion, collaboration forums to design bundled tourism packages and tourism circuits, and the development of a PUTRI Central Java digital collaboration model as best practice for other regions.

Program implementation spans 3 to 4 months, located at the DPD PUTRI Central Java office and member tourism destinations, employing a hybrid methodology through offline workshops and online mentoring. Activity procedures include baseline assessments of members' digital readiness, observation of destination digital marketing strategies, pilot implementation of the four digital pillars, and evaluation based on indicators such as digital presence scores, audience engagement, traffic growth, and conversion rates.

Final program targets include a minimum 70% digital capacity improvement among PUTRI members, the formation of one to two industry collaboration packages in the form of tourism circuits, a minimum 30% increase in digital presence on Google Maps, OTAs, and social media platforms, the completion of a PUTRI Central Java digital collaboration model guide for national replication, and the creation of an active and measurable long-term collaboration network. Collectively, these components are expected to catalyze the emergence of a strong, sustainable, and highly competitive collaborative ecosystem for artificial tourism in Central Java.

METHOD

Community service programs focused on strengthening the capacity of tourism actors through sustainable tourism training, digital marketing, promotional platform development, and multi-stakeholder network building have been demonstrated to produce measurable positive impacts on destination development. Increased participant knowledge regarding sustainability concepts, strengthened digital skills, and enhanced promotional platform management capabilities indicate that intensive training and mentoring approaches are effective in improving community readiness to adapt to the demands of the modern tourism industry.

Digitalization has been demonstrated to function as a critical enabler supporting collaboration among tourism actors. The integration of digital presence, engagement, distribution, and conversion has resulted in improvements in content quality, promotional reach, and the effectiveness of destination communication, consistent with findings from related activities (Kamal et al., 2024). Furthermore, the experience-based tourism approach introduced in this program encouraged participants to recognize that the core value of a destination derives not solely from physical infrastructure, but from its capacity to create meaningful experiences for visitors (Widianti et al., 2024).

This program also demonstrated that multi-stakeholder collaboration—involving government representatives, MSME communities, academics, and media practitioners—plays a strategic role in strengthening destination governance. The formation of networks, commitment to information updates, and joint tourism package development initiatives serve as indicators that a collaborative tourism ecosystem can emerge organically through appropriate mentoring processes.

The implementation methodology employed an action-based collaboration approach with a women-led orientation, focusing on the empowerment of tourism business actors within DPD PUTRI Central Java. Activities were conducted over one day as the initial phase of the program, held in Surakarta (Solo) on November 19, 2025. Participants included 85 individuals representing diverse business backgrounds, encompassing hotel and homestay owners, food and beverage operators, destination managers, tour operators, and tourism MSMEs from various regions across Central Java.

Activity implementation commenced with a brief assessment of participants' digital literacy levels and business readiness, followed by sessions aimed at deepening understanding of digital transformation in tourism, contemporary tourist behavioral patterns, digital marketing concepts, and the urgency of cross-operator collaboration within the regional tourism ecosystem. This approach emphasized real collaboration, digital capacity building, peer learning, and data-driven decision-making, ensuring that participants not only acquired knowledge but also produced preliminary action plans for the digital promotional development of their respective businesses.



Figure 1. Implementation method

The program was structured around three primary stages. The first stage comprised awareness building through presentations on the current state of digital tourism, contemporary tourist behavioral dynamics, and challenges confronting women tourism entrepreneurs. The second stage consisted of intensive training encompassing introductions to digital presence,

content strategy, and the utilization of social media as a rapid and effective promotional tool for tourism businesses. Participants were trained in content creation fundamentals, storytelling techniques, basic photo and video production using smartphones, and strategies for managing customer interactions on digital platforms. The third stage involved the formulation of a follow-up action plan, including inter-member collaboration commitments within DPD PUTRI, mapping of business synergy potential, and the development of initial steps for joint digital promotion. Although the program was executed within a single-day timeframe, it succeeded in producing preliminary improvements in participants' understanding of tourism digitalization and laying the groundwork for a collaboration framework to be developed in subsequent program phases.

The methodological approach employed participatory training, focus group discussions (FGD), experiential learning, and mini action planning (Kamal et al., 2024; Maulidah et al., 2022; Widiанти et al., 2021, 2024), ensuring active involvement of all participants both as recipients of knowledge and as contributors of ideas and experiences. This program was also designed as a foundation for subsequent mentoring phases, encompassing deeper business digitalization, collaborative package development, shared marketing platform strengthening, and the development of data-based sustainability indicators. The implementation methodology thus focuses not merely on short-term capacity enhancement but also on establishing the groundwork for a stronger, sustainable, and growth-ready women's tourism ecosystem in Central Java.

RESULT AND DISCUSSION

Program Implementation

The community service activities were carried out in accordance with the program plan, encompassing socialization, training, mentoring, and evaluation phases. All program activities were conducted over a single day in Surakarta (Solo), involving 85 participants representing various tourism stakeholders. Implementation commenced with joint coordination to ensure the readiness of facilities, participants, and priority training themes. Subsequent activities included material presentation sessions, hands-on practice, and intensive mentoring for participants. Overall, community participation levels demonstrated high enthusiasm, evidenced by stable attendance rates, active engagement in discussions, and progressive improvement in participant outputs across each mentoring phase. This condition serves as an indicator that

participants possess strong motivation to develop local tourism potential through the application of digital technology.

Enhancement of Understanding on Sustainable Tourism

In the initial phase, participants gained foundational knowledge regarding core concepts of sustainable tourism, community-based destination management, and the challenges of tourism development in the digital era. Based on pre-test and post-test results, participants' average knowledge increased by 35 to 45 percent. Participants demonstrated the ability to identify sustainability issues such as environmental conservation, preservation of local culture, and the importance of community involvement in tourism governance.

Group discussions revealed that participants' prior understanding had been largely limited to aspects of promotion and tourism services. Following the program, participants demonstrated improved capacity to formulate sustainability-based action plans, monitor tourist responses, refine content, and independently optimize digital channels. Additionally, participants showed increasing ability to build collaboration among tourism actors to create shared added value, and to integrate local wisdom into tourism narratives and experiences, thereby strengthening destination identity and ensuring sustainable attractiveness. These findings indicate that enhanced sustainability literacy constitutes a critical foundation for responsible tourism development.

Strengthening Digital Marketing and Creative Content Skills

Digital marketing training constituted one of the central components of the program. Participants were trained in producing photo content, short videos, and basic copywriting for social media platforms. They were also introduced to destination branding strategies, the utilization of digital platforms including Instagram, TikTok, and Google Business Profile, as well as audience analytics techniques.

Practical evaluation results demonstrated significant improvements in participants' technical capabilities. The majority of participants succeeded in producing quality photo and video content using available devices, particularly mobile phones. Content produced feature tourism attractions, MSME products, and culture-based tourism experiences. Furthermore, a number of participants began regularly uploading promotional content, while several homestay operators optimized their service profiles through digital platforms.

Participants' understanding of social media algorithms and user interaction techniques also improved, as evidenced by increased engagement on several local community accounts. These results indicate that training effectively stimulated the growth of creativity, digital independence, and increased participant confidence in promoting tourism destinations.

Development of Tourism Promotion Digital Platforms

Subsequent activities focused on facilitating the establishment of tourism destination digital platforms. Mentoring was provided to develop information architectures, map tourism potentials, and integrate content into these platforms. The digital platforms were designed as centralized destination information hubs, encompassing tourism attractions, MSME profiles, event calendars, and contact services for tourists.

Mentoring results demonstrated that community members began to independently manage these platforms and committed to sustaining content management, including data updates and promotion of current activities. Furthermore, the digital platforms served as a medium for collaboration among tourism actors and opened opportunities for partnerships with external parties.

Network Formation and Multi-Stakeholder Synergy

Network formation emerged as a critical dimension for ensuring program sustainability. Through discussion forums and FGD sessions, collaborative relationships were established among tourism actors, government representatives, youth communities, MSMEs, and higher education institutions. These interactions produced several joint initiatives, including the planning of an annual event calendar, the strengthening of tourism service standards, and the conceptualization of integrated tourism package development.

Multi-stakeholder collaboration strengthened the destination's competitive position within the ecotourism and digital tourism landscape, while simultaneously creating a participatory governance model for destination management. The program demonstrated that the empowerment of business operators is most effective when inter-actor relationships are harmoniously and mutually supportive.

Impact Evaluation

Evaluation was conducted through observation, interviews, pre-test and post-test instruments, and analysis of participant activities during the mentoring phase. Overall, the program produced positive impacts, including:

1. Enhanced participant knowledge and awareness of sustainable tourism concepts;
2. Strengthened digital marketing skills, evidenced by increased content production and digital platform utilization;
3. The establishment of an integrated tourism promotional digital platform; and
4. The formation of a multi-stakeholder network supporting the sustainability of destination management.

Program results indicate that the combination of training, mentoring, and collaborative work effectively enhances community capacity to leverage digitalization for sustainable tourism development. These findings simultaneously reinforce the principle that community-based collaboration is a key element within the Community-Based Tourism (CBT) approach, wherein the success of destination development is critically dependent upon the active involvement and synergy of local stakeholders.



Figure 2. Training Participants



Figure 3. Discussion



Figure 4. Practice

CONCLUSION AND RECOMMENDATION

The community service program focused on strengthening the capacity of tourism actors through sustainable tourism training, digital marketing, promotional platform development, and multi-stakeholder network building produced measurable positive impacts on destination development. Increased participant knowledge regarding sustainability concepts, enhanced digital skills, and improved promotional platform management capabilities demonstrate that intensive training and mentoring approaches are effective in increasing community readiness to adapt to the demands of the modern tourism industry.

Digitalization has proven to serve as a critical enabler supporting collaboration among tourism actors. The integration of digital presence, engagement, distribution, and conversion generated improvements in content quality, promotional reach, and the effectiveness of destination communication (Kamal et al., 2024). Furthermore, the experience-based tourism approach introduced in this program encouraged participants to understand that the core value of a destination is derived not solely from physical facilities, but from the capacity to create meaningful experiences for tourists (Widianti et al., 2024).

The program also demonstrated that multi-stakeholder collaboration involving government representatives, MSME communities, academics, and media practitioners plays a strategic role in strengthening destination governance. Network formation, commitment to information updates, and joint tourism package development initiatives serve as indicators that a collaborative tourism ecosystem can form organically through appropriate mentoring processes.

Overall, this program not only enhanced individual capacities but also strengthened institutional frameworks and destination networks, thereby establishing a more sustainable foundation for the future development of sustainable tourism.

Recommendations

1. For Industry Actors and Destination Managers
 - a. Develop collaborative actions incrementally through simple activities such as cross-promotion, joint content management, or event calendar development to maintain the continuity of cooperative efforts.
 - b. Leverage digital data (social media insights, analytics) for decision-making and evaluation of promotional program effectiveness.
 - c. Prioritize the development of authentic, value-added tourism experiences rather than merely expanding physical infrastructure.
 - d. Continue routine digital platform management, including content updates, user response monitoring, and collaboration with local creative communities.
2. For Local Government
 - a. Provide facilitative support, including access to the internet, regional tourism information, and synchronization of destination programs with regional policies.

- b. Simplify tourism regulations and administrative processes to facilitate innovation and collaboration among tourism actors.
 - c. Prioritize data-driven partnerships and tangible results from field-level tourism practitioners when determining policy directions and budget allocations.
3. For Academics
- a. Apply action research approaches to ensure that community service activities produce tangible, replicable impacts.
 - b. Compile best practice documentation and provide training materials readily adaptable by local communities.
 - c. Strengthen long-term relationships between higher education institutions and industry actors through periodic mentoring and capacity development programs.
4. For Communities and Local Organizations
- a. Participate actively in the tourism value chain through contributions of cultural content, local experiences, and community-based educational activities.
 - b. Develop digital skills among youth as a critical asset in supporting destination promotion and management.
 - c. Engage in environmental and cultural preservation efforts as part of sustainable tourism implementation.
5. For Program Sustainability and Replication
- a. Conduct periodic post-program monitoring of digitalization progress, promotional activities, and multi-stakeholder collaboration.
 - b. Identify new cooperation opportunities based on local needs and strengths to ensure destination development does not stagnate at the initial phase.
 - c. Adapt the program model to the characteristics of each village or destination so that implementation aligns more closely with local social, cultural, and economic conditions.

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4. Academics involved in action research, mentoring, and program documentation with dedicated commitment.
5. Local and national media for covering and publishing these collaborative best practices to inspire other destinations.
6. Local communities, artists, and artisans for their contributions in enriching the destination's experience economy with authentic cultural content and local wisdom.

This program demonstrates that pentahelix collaboration can function more effectively when first activated through the concrete actions of industry actors and reinforced by data driven approaches. The principle of "industry as trigger, pentahelix as enabler" has proven to be a relevant pattern: when industry actors act on the basis of concrete evidence and tangible results, other stakeholders are more readily mobilized to engage and provide support, enabling the collaborative ecosystem to form more organically and sustainably.

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