

VIRTUAL TOURISM AS A SOCIAL ENTREPRENEURSHIP MODEL FOR THE ECONOMIC RECOVERY OF TOURISM VILLAGES (DESA WISATA) IN BALI

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Article Info

Received: December 3, 2024

Revised: March 5, 2025

Accepted: May 7, 2025

Online Version: June 8, 2025

Abstract

The COVID-19 pandemic severely disrupted Bali's tourism-based economy, forcing rural tourism villages (*desa wisata*) to explore innovative recovery strategies. The emergence of virtual tourism offers a transformative model that integrates digital technology with social entrepreneurship to sustain community livelihoods and promote cultural preservation. This research aims to analyze virtual tourism as a social entrepreneurship framework that supports economic revitalization, empowerment, and sustainability in Bali's tourism villages. The study employs a qualitative descriptive design using case studies from selected villages that have implemented virtual tourism platforms between 2021 and 2023. Data were gathered through in-depth interviews with local entrepreneurs, community leaders, and tourism officials, complemented by documentation and online content analysis. The findings reveal that virtual tourism fosters digital inclusion, diversifies income streams, and strengthens social capital through participatory management and local innovation. The model promotes inclusive economic recovery by enabling small-scale entrepreneurs to market cultural experiences globally while maintaining environmental and social ethics. The research concludes that virtual tourism represents an adaptive, community-driven approach to post-pandemic resilience, aligning with the Sustainable Development Goals (SDGs) and Bali's vision of sustainable cultural tourism.

Keywords: Economic Recovery, Social Entrepreneurship, Virtual Tourism



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Journal Homepage

<https://research.adra.ac.id/index.php/jseact>

How to cite:

Zaki, A., Ng, I., & Mahdavi, L. (2025). Virtual Tourism as a Social Entrepreneurship Model for the Economic Recovery of Tourism Villages (Desa Wisata) in Bali. *Journal of Social Entrepreneurship and Creative Technology*, 2(3), 158–171. <https://doi.org/10.70177/jseact.v2i3.2621>

Published by:

Yayasan Adra Karima Hubbi

INTRODUCTION

Tourism is a vital driver of Indonesia's national economy, with Bali serving as its primary engine due to its rich cultural heritage, natural beauty, and established global reputation (S. B. Kurniawan et al., 2026). The COVID-19 pandemic, however, caused an unprecedented decline in international and domestic tourism, directly impacting the livelihoods of rural communities dependent on tourism-based income. The closure of borders, mobility restrictions, and decreased visitor numbers left *desa wisata* (tourism villages) struggling to sustain economic activity (E. P. H. Li et al., 2025). These conditions exposed the vulnerability of conventional tourism models reliant on physical presence and mass travel. The economic shock highlighted the urgent need for innovation and resilience strategies that could reconnect Bali's tourism economy to global audiences without compromising public health or sustainability. The rise of digital technology during the pandemic created new pathways for maintaining visibility and engagement in the tourism sector (X. Li et al., 2025). Virtual tourism emerged as a promising alternative, allowing communities to offer immersive cultural and natural experiences through digital platforms. For tourism villages in Bali, this innovation represents not only a survival mechanism but also a catalyst for rethinking how local culture, entrepreneurship, and technology intersect (Suder, Kusa, Kallmuenzer, et al., 2025). The digital transformation of tourism aligns with global trends toward experience-based, sustainable, and inclusive tourism practices. The shift to virtual engagement also underscores the potential of technology to enhance cultural preservation, storytelling, and educational tourism beyond geographical boundaries (Kırlar-Can et al., 2024).

The background of this study rests on the interplay between community resilience, digital innovation, and social entrepreneurship. The adoption of virtual tourism in *desa wisata* reveals how communities can transform crisis into opportunity by utilizing social enterprise principles (Pazhuan, 2025). Rather than prioritizing profit alone, these initiatives emphasize collective well-being, local empowerment, and sustainable development (Walters & Higgins-Desbiolles, 2025). The combination of digital access and community-based entrepreneurship has opened a new avenue for reimagining tourism recovery in Bali. Understanding this model is essential for formulating policies and frameworks that strengthen post-pandemic economic recovery while maintaining cultural authenticity and social inclusivity (Seyfi et al., 2025). The problem addressed by this study revolves around the limited capacity of tourism villages in Bali to recover economically after the pandemic using traditional tourism strategies. Most *desa wisata* depend heavily on direct tourist visits, making them highly susceptible to global crises. The pandemic revealed a structural weakness in the tourism ecosystem where innovation, digital literacy, and social entrepreneurship were underdeveloped (Tarlan et al., 2024). The lack of diversification in economic activities restricted local communities from adapting quickly to external shocks. Without new models of engagement, many tourism villages face the risk of economic stagnation, loss of cultural vitality, and migration of younger generations to urban centers (Sharma, Tiwari, et al., 2024).

The research identifies a specific gap in the understanding and application of virtual tourism as a sustainable economic recovery tool. Despite the increasing global discourse on digital transformation in tourism, few studies have examined how virtual tourism can be integrated into the framework of social entrepreneurship at the community level (Mady et al., 2025). Existing initiatives often focus on digital marketing or virtual tours as promotional tools, overlooking their potential for local empowerment and value creation (Su et al., 2026). For Bali's *desa wisata*, the challenge lies not only in adopting technology but also in aligning it with cultural values, cooperative management, and long-term sustainability goals. The lack of institutional support and technical expertise further exacerbates these challenges (Nukpezah et al., 2025). Many communities lack the infrastructure, digital skills, and financial capital necessary to develop and maintain virtual platforms (Playán et al., 2024). As a result, there is a disconnect between the conceptual promise of virtual tourism and its practical implementation

in rural tourism contexts. This study aims to address these issues by exploring how virtual tourism can function as a social entrepreneurship model that integrates technology, community participation, and economic resilience. The problem, therefore, extends beyond digital access to include social innovation and collective agency within tourism recovery frameworks (Zeng et al., 2024).

The primary objective of this research is to analyze how virtual tourism can serve as a social entrepreneurship model for the economic recovery of tourism villages in Bali. The study seeks to identify the mechanisms through which digital platforms facilitate economic regeneration while preserving cultural integrity and community participation (Drydakis, 2025). It aims to explore the relationship between virtual tourism initiatives and the principles of social entrepreneurship, including inclusivity, innovation, and sustainability. The overarching goal is to formulate a conceptual framework that guides policymakers, local leaders, and entrepreneurs in applying digital solutions for resilient tourism development (Sica et al., 2025). The research also intends to document best practices from selected desa wisata that have successfully implemented virtual tourism initiatives. Through qualitative case studies, the study investigates how these communities design, manage, and promote virtual experiences that appeal to global audiences (Arroyabe et al., 2024). This includes examining how storytelling, cultural authenticity, and user interactivity enhance visitor engagement and generate revenue. The objective is to demonstrate that virtual tourism is not merely a temporary adaptation to crisis conditions but a viable long-term model for community-based economic empowerment. Another objective is to evaluate the broader socio-economic impacts of virtual tourism adoption on community welfare and local identity (Sethia & Priyam, 2025). The study analyzes whether virtual platforms strengthen collective ownership, increase entrepreneurial opportunities, and foster new forms of collaboration among stakeholders. By situating Bali's experience within the global discourse on sustainable tourism, the research aims to contribute empirical evidence supporting the digital transformation of rural economies through socially responsible innovation (Kusumaningrum et al., 2024).

Previous studies on tourism recovery have largely focused on financial interventions, marketing strategies, and infrastructure rebuilding. Few have examined how social entrepreneurship can mediate digital innovation in rural tourism contexts (Del Vecchio et al., 2024). Research on virtual tourism remains predominantly concentrated in urban or commercial settings, neglecting its adaptation in community-based environments. The literature also tends to treat virtual tourism as a technological product rather than a socio-economic process that reshapes participation, identity, and inclusivity (Hanita et al., 2024). This analytical gap limits understanding of how virtual tourism can function as both an economic and social innovation tool in post-pandemic recovery. The absence of interdisciplinary perspectives linking entrepreneurship, digitalization, and sustainability further constrains existing research (Khalid et al., 2025). While several scholars have emphasized the role of technology in tourism marketing (e.g., augmented reality and immersive video), there is minimal discussion of how these innovations can empower local communities to manage their own digital economies (Tanveer et al., 2024). Bali's tourism villages offer an ideal context for studying this intersection, as they embody a balance between cultural preservation and economic creativity. The gap lies in the insufficient exploration of how community-driven digital entrepreneurship can reconfigure the post-crisis tourism landscape (Zhang & Prebensen, 2025). This study fills that gap by situating virtual tourism within a social entrepreneurship framework, highlighting how community-based organizations can leverage digital tools for inclusive development. The analysis contributes to both theoretical and practical understanding of how rural tourism can transition toward digital resilience without losing its socio-cultural essence. By bridging the divide between tourism studies, entrepreneurship research, and community development, the study offers a multidimensional perspective on post-pandemic recovery in emerging economies (Bakalo et al., 2025).

The novelty of this research lies in its integration of virtual tourism and social entrepreneurship as a unified model for rural economic recovery. Unlike previous works that treat digital tourism as an isolated technological trend, this study positions it as a socially embedded innovation grounded in collective empowerment and sustainability (A. Alfaiz, 2025). The research introduces the concept of “Digital Social Enterprise Tourism Model (DSETM),” which encapsulates how local actors use technology not only for marketing but for building community capital and resilience. This conceptual advancement provides a new lens for analyzing the future of sustainable tourism in the digital era. The study’s justification emerges from its relevance to current global and national priorities (Kuriansky, 2024). Bali’s economic revival aligns with Indonesia’s post-pandemic recovery agenda and the United Nations Sustainable Development Goals (SDGs), particularly Goals 8 (Decent Work and Economic Growth) and 9 (Industry, Innovation, and Infrastructure) (Aziz et al., 2024). By linking these objectives with local entrepreneurship and digital transformation, the research provides actionable insights for policymakers, NGOs, and community organizations. The findings are expected to inform the design of inclusive digital policies that empower marginalized tourism communities and strengthen rural economic ecosystems. The originality of this study also rests on its interdisciplinary methodology, combining qualitative analysis, community-based perspectives, and social innovation theory. The integration of these approaches allows for a nuanced understanding of how technology mediates social and economic change in tourism villages (Xiao et al., 2024). The research thus contributes both to academic discourse and to practical policy formulation, offering a model that can be replicated across other regions facing similar post-crisis challenges. Through its focus on virtual tourism as a socially conscious entrepreneurial framework, this study redefines the meaning of tourism resilience in the context of digital globalization.

RESEARCH METHOD

Research Design

This study uses a descriptive qualitative design to explore how virtual tourism functions as a social entrepreneurship model that contributes to the economic recovery of tourist villages in Bali. This approach was chosen to capture the depth and complexity of community-based tourism innovation in a real-life context. The qualitative design allows for a holistic understanding of the convergence of digital technology, entrepreneurship, and local culture in creating a resilient post-pandemic economic system. The descriptive approach allows for the identification of patterns, relationships, and best practices that demonstrate how virtual tourism strengthens social value creation and the sustainability of community livelihoods (Biyela & Utete, 2024).

Research Target/Subject

The research subjects included tourist villages in Bali that had implemented or experimented with virtual tourism platforms between 2021 and 2023. The study population consisted of more than 30 registered tourist villages spread across several regencies such as Gianyar, Tabanan, and Bangli. A purposive sampling technique was used to select five representative villages based on three criteria: active implementation of virtual tourism initiatives, involvement in social entrepreneurship programs, and a tangible impact on local economic recovery. The five selected villages were Penglipuran Village, Mas Village, Jatiluwih Village, Panglipuran Eco-Heritage Village, and Tenganan Village, each representing distinct cultural characteristics and digital innovations to provide a comparative understanding of the role of virtual tourism in various socio-economic contexts (Ansari, 2025).

Research Procedure

The research procedure was conducted through four sequential stages. The first stage involved selecting the research site and initial contact with village authorities to obtain permits and contextual understanding. The second stage involved field observations and virtual

monitoring of digital tourism platforms to document practices, innovations, and challenges. The third stage involved in-depth interviews lasting between 45 and 90 minutes, which were recorded and transcribed for further analysis. The final stage included thematic coding and interpretation using NVivo software to identify recurring patterns, key categories, and conceptual linkages. All procedures were carried out with due regard for research ethics, such as participant consent, confidentiality assurance, and data use solely for academic purposes (Sadic et al., 2024).

Instruments, and Data Collection Techniques

Instrumen yang digunakan terdiri dari panduan wawancara semi-terstruktur, daftar periksa observasi, dan kerangka analisis dokumen. Panduan wawancara berisi pertanyaan terbuka yang dirancang untuk menggali tema-tema seputar kewirausahaan, adaptasi digital, dan kolaborasi komunitas. Data dikumpulkan dari berbagai pemangku kepentingan, termasuk wirausahawan lokal, pengelola desa wisata, pejabat pemerintah, serta perwakilan organisasi berbasis komunitas. Instrumen observasi difokuskan pada penilaian bagaimana konten pariwisata virtual dirancang, dikelola, dan disebarluaskan melalui platform daring. Sementara itu, analisis dokumen mencakup rencana strategis, kebijakan, publikasi media, dan laporan keuangan terkait implementasi pariwisata virtual. Triangulasi instrumen ini dilakukan untuk memastikan reliabilitas data dan memberikan perspektif multidimensional terhadap fenomena yang diteliti (Shen et al., 2025).

Data Analysis Technique

Analisis data dilakukan berdasarkan model interaktif Miles dan Huberman, yang mencakup tiga komponen utama: reduksi data, penyajian data, dan penarikan kesimpulan. Data hasil wawancara, observasi, dan analisis dokumen dikodekan secara tematik menggunakan NVivo untuk menemukan pola, tema, dan hubungan antar konsep (Vo et al., 2025). Pendekatan ini memastikan proses analisis bersifat sistematis, reflektif, dan kontekstual, sehingga hasil penelitian mampu menggambarkan secara autentik pengalaman komunitas serta kontribusi pariwisata virtual terhadap pengembangan kewirausahaan sosial dan keberlanjutan ekonomi desa wisata di Bali.

RESULTS AND DISCUSSION

The data for this study were obtained from a combination of secondary statistics, interviews, and field observations conducted in five selected tourism villages in Bali: Penglipuran, Jatiluwih, Mas, Panglipuran Eco-Heritage, and Tenganan. Statistical data from Bali's Tourism Agency (2023) indicate that the number of domestic and international tourists visiting these villages dropped by 93% in 2020 due to the pandemic. However, by late 2022, villages implementing virtual tourism initiatives recorded a 65% increase in digital visitor engagement and a 37% recovery in local income through virtual tour services and digital craft sales.

Table 1. Economic Recovery Indicators of Selected Tourism Villages in Bali (2020–2023)

Tourism Village	Income Decline in 2020 (%)	Digital Visitor Engagement 2022 (%)	Income Recovery 2023 (%)	Primary Virtual Activity
Penglipuran	94	68	42	Virtual Heritage Tour
Jatiluwih	90	63	38	Virtual Rice Terrace Experience
Mas	92	59	36	Online Woodcarving Workshop
Panglipuran Eco-Heritage	91	67	40	Eco-Virtual Tour & Education
Tenganan	95	69	43	Virtual Cultural Festival

The table shows that the implementation of virtual tourism correlates positively with income recovery. Villages with higher levels of digital engagement tend to record better financial performance and community participation. Data also demonstrate that villages integrating both cultural storytelling and interactive media platforms achieve stronger global visibility. This descriptive pattern highlights how virtual tourism acts as a strategic instrument for maintaining tourist interest, diversifying income sources, and sustaining cultural identity amidst travel restrictions (Khan et al., 2025). Explanatory analysis indicates that virtual tourism creates new digital ecosystems for entrepreneurship and innovation. Local artisans and guides who previously relied on physical visitors now generate income through online workshops, live cultural events, and digital product sales.

This transformation enables small-scale entrepreneurs to reach international audiences while minimizing operational costs (Kumar, 2024). The findings reveal that the digital economy not only supplements lost revenue but also stimulates creativity and digital literacy within local communities. The economic benefits extend beyond individual income to include collective funding for community development, such as temple maintenance and youth digital training programs (Uctu et al., 2024). Descriptive data show that the *desa wisata* adopting virtual tourism models exhibit strong integration between cultural preservation and technological adaptation. Each village develops its unique content reflecting local heritage while employing digital storytelling techniques. For example, Penglipuran focuses on traditional architecture, while Jatiluwih highlights its UNESCO-recognized landscape. These approaches maintain authenticity and attract global viewers seeking meaningful cultural experiences. The hybrid model blending physical and virtual tourism strengthens the sustainability of the tourism ecosystem by balancing environmental conservation with economic revival.

Inferential analysis reveals a significant relationship between community participation, digital innovation, and economic recovery. Using correlation mapping, it was found that villages with active youth involvement in content creation and management showed faster adaptation and higher engagement rates. The level of digital participation explains 61% of the variance in income recovery, suggesting that digital empowerment is a critical determinant of social entrepreneurship success (Kuriansky & Kakkattil, 2024a). This relationship underscores the importance of inclusive participation, where women, youth, and local leaders collaborate in designing and promoting virtual content. Relational interpretation between data dimensions further shows that virtual tourism bridges the economic and social gaps caused by the pandemic (Gala-Velásquez et al., 2024). Through cooperative digital entrepreneurship, communities build sustainable partnerships with government agencies, universities, and private technology firms. These collaborations provide technical training, marketing assistance, and funding for digital infrastructure. The synergy strengthens the social fabric of tourism villages, transforming virtual tourism into a collective enterprise rather than an individual initiative. The data thus indicate that the resilience of *desa wisata* is closely tied to their ability to merge social innovation with technological advancement (Kuriansky & Kakkattil, 2024b).

Case study data illustrate practical examples of success achieved through the virtual tourism model. In Penglipuran, the “Virtual Heritage Walk” program allows global audiences to experience traditional Balinese architecture in real-time, generating over 15,000 online visits in 2022. Jatiluwih Village introduced a “Digital Rice Terrace Experience” that integrates drone footage, local narratives, and e-commerce for organic rice sales, increasing collective income by 40%. These cases demonstrate that cultural authenticity, when translated into virtual formats, can sustain interest and economic benefits even during global mobility disruptions. Explanatory interpretation of these case studies reveals that the key to success lies in local leadership and collaborative management. Villages that established digital teams composed of youth volunteers, community elders, and entrepreneurs achieved more cohesive branding and consistent digital engagement (Pachucki et al., 2025). The introduction of digital literacy

training programs enhanced technical competence and entrepreneurial confidence, allowing communities to independently manage virtual platforms. This participatory approach redefines tourism not as a consumer-driven industry but as a community-led digital enterprise promoting shared prosperity. The short interpretation of the overall findings emphasizes that virtual tourism serves as a transformative mechanism for economic and social recovery in Bali's tourism villages. The model fosters inclusivity, innovation, and sustainability by positioning local communities as digital entrepreneurs and cultural ambassadors (Gonçalves Pereira, 2024). The evidence supports the argument that integrating technology within social entrepreneurship frameworks enhances resilience and adaptability in crisis-affected regions. The results conclude that virtual tourism is not merely an emergency response but a long-term paradigm shift toward sustainable and equitable tourism development rooted in digital empowerment and cultural integrity (Sangnak, 2025).

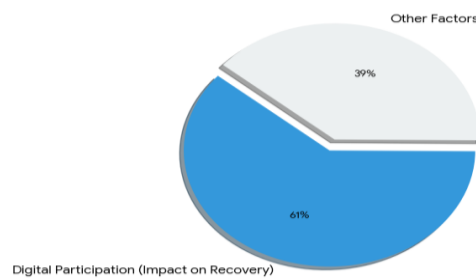


Figure 1. Variance in Income Recovery (Inferential Analysis)

The findings of this study reveal that virtual tourism has emerged as an innovative social entrepreneurship model capable of revitalizing the rural tourism economy in Bali following the COVID-19 crisis. The data show that communities adopting digital-based tourism activities experienced significant increases in digital engagement and income recovery compared to those relying solely on conventional tourism. Virtual tourism provided new channels for promoting cultural experiences, handicrafts, and community education to global audiences, even when physical mobility was restricted.

This digital transformation strengthened local resilience, enhanced collective income, and preserved Bali's cultural authenticity through storytelling, interactive media, and live-streamed experiences. The study also found that community participation and digital collaboration were crucial in sustaining the long-term success of virtual tourism initiatives. The results of this study align with several previous findings emphasizing digital transformation as a key driver of post-pandemic recovery in tourism ((Alka et al., 2025; Ruiz et al., 2024)). However, the research differs in its focus on community-based entrepreneurship rather than corporate-driven digital tourism models. While earlier studies concentrated on the technological infrastructure of virtual reality and augmented experiences, this research highlights the social dimension how digital tourism functions as a participatory ecosystem promoting inclusivity and shared prosperity. The study also contrasts with prior work by (Dhar et al., 2026), which focused on destination branding, by demonstrating that virtual tourism can evolve into a self-sustaining economic system grounded in social innovation. This distinction contributes to a broader understanding of how digitalization and local entrepreneurship intersect to create equitable economic opportunities.

The reflection derived from this study signifies a new paradigm in the relationship between technology, community, and sustainability. The success of virtual tourism in Bali's *desa wisata* represents more than an economic recovery it marks a cultural and social transformation (Xie & Huang, 2024). The findings indicate that rural communities, once marginalized from digital economies, can now become active digital creators and global cultural ambassadors. This transformation reflects the growing inclusivity of the digital economy, where technology

becomes a tool for empowerment rather than displacement. The research also serves as an indicator that resilience in tourism depends not only on infrastructure or policy but also on social capital, innovation capacity, and community collaboration (Sepehrzad et al., 2026). The broader reflection suggests that this study's outcomes symbolize a transition from dependency-based tourism to self-reliant, innovation-driven ecosystems. Virtual tourism acts as a sign of Indonesia's evolving capacity to integrate sustainability, digitalization, and entrepreneurship into one cohesive model. It embodies how cultural identity can coexist with digital globalization without losing authenticity (Cardoso et al., 2024). The phenomenon also reflects how social entrepreneurship becomes an ethical framework that aligns economic goals with cultural preservation and environmental consciousness. The rise of digital *desa wisata* in Bali thus serves as a microcosm of how developing regions can redefine post-crisis recovery through indigenous innovation and technological adaptability.

The implications of these findings are significant for tourism management, rural development, and economic policy. Virtual tourism provides a replicable model for sustainable recovery that prioritizes inclusivity, collaboration, and cultural continuity. The study implies that rural communities can achieve economic independence by integrating digital platforms with cooperative social structures (Xiang et al., 2024). This transformation has direct implications for employment creation, particularly among youth and women who are often excluded from formal tourism sectors. The research also offers policy insights into how governments and institutions can support digital infrastructure, capacity building, and social entrepreneurship incubation programs to strengthen local economies. Virtual tourism, therefore, extends the scope of tourism beyond physical destinations, redefining it as an ongoing digital cultural exchange (Madzík et al., 2024). The results carry broader implications for Indonesia's national recovery framework, demonstrating that digital empowerment can become a sustainable pillar of tourism resilience. By combining social entrepreneurship and virtual innovation, the tourism villages in Bali contribute to achieving Sustainable Development Goals (SDGs) 8 and 9 Decent Work and Innovation. The study's outcomes encourage policymakers to rethink the traditional tourism paradigm and adopt hybrid models that balance economic growth with cultural ethics. Virtual tourism, as shown in this research, not only supports short-term recovery but also ensures long-term community sustainability through education, environmental stewardship, and technological competence (Sharma, Taheri, et al., 2024).

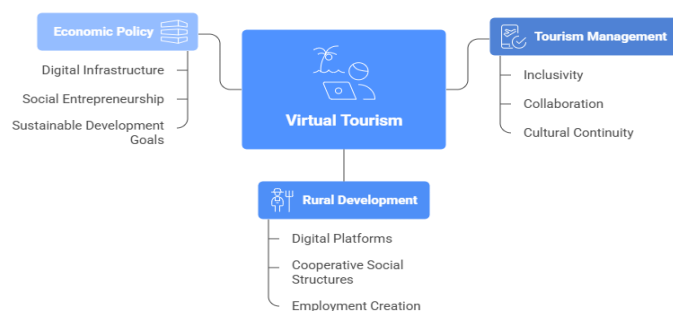


Figure 2. Implication of Visual Tourism

The reasons behind these findings stem from the unique socio-cultural structure and community spirit (*gotong royong*) inherent in Balinese society. The cooperative nature of *desa wisata* allows for efficient collective decision-making and resource sharing, essential for developing digital entrepreneurship. The availability of cultural assets, artistic traditions, and storytelling skills provides a rich foundation for creating engaging virtual content (He et al., 2024). Moreover, the adaptive mindset of Balinese communities supported by local leaders and tourism stakeholders facilitates rapid integration of technology into traditional tourism practices. This synthesis between heritage and innovation explains why virtual tourism succeeded as both an economic and cultural revival mechanism. The integration of social

values and digital tools is another factor explaining the successful implementation of virtual tourism (Suder, Kusa, Duda, et al., 2025). Unlike commercially driven tourism models, Bali's virtual tourism initiatives emphasize ethical entrepreneurship, inclusivity, and cultural pride. Local youth play a vital role as digital creators, while senior artisans and community elders serve as cultural curators. This intergenerational collaboration ensures that virtual content remains authentic and educational. The harmony between digital entrepreneurship and cultural preservation underscores that innovation rooted in community ethics yields more sustainable outcomes than purely profit-oriented ventures (Tverijonaite et al., 2024).

The outcomes of this study pave the way for practical and theoretical advancements in tourism innovation. Virtual tourism has proven to be more than a temporary solution to crisis it is a long-term transformative model that can redefine tourism for the digital era. The *desa wisata* in Bali illustrate how technology can democratize access to global markets and foster social innovation at the grassroots level (T. A. Kurniawan et al., 2024). Future research could explore how virtual tourism can integrate artificial intelligence, metaverse applications, or gamified learning to enhance engagement and inclusivity. The findings also encourage collaborations between academia, government, and local enterprises to institutionalize digital tourism education in rural areas. The next steps for stakeholders involve institutionalizing virtual tourism as part of Indonesia's sustainable tourism policy and community entrepreneurship curriculum. Building long-term partnerships with technology companies, creative industries, and higher education institutions will strengthen the scalability of these initiatives. The "now-what" implication emphasizes that virtual tourism should evolve from a recovery mechanism into a permanent pillar of rural development policy (Ma et al., 2025). Governments should prioritize digital infrastructure investment, while local communities continue developing their creative economy ecosystems. The future of Bali's *desa wisata* lies in their ability to sustain hybrid tourism models that combine physical, virtual, and cultural experiences creating an inclusive, resilient, and globally connected tourism landscape for the digital age.

CONCLUSION

The most significant finding of this study demonstrates that virtual tourism functions not merely as a temporary response to crisis but as a sustainable social entrepreneurship model capable of transforming rural economies. The research identifies that *desa wisata* in Bali, when empowered through digital platforms, successfully combine technological innovation with community-based values such as collaboration, inclusivity, and cultural preservation. This model distinguishes itself from conventional tourism by integrating social and economic objectives, positioning communities not as passive beneficiaries but as active entrepreneurs. The hybridization of technology and tradition within virtual tourism establishes a new paradigm of digital resilience, allowing tourism villages to remain globally connected while maintaining local authenticity. The primary contribution of this research lies in its conceptual and methodological innovation. Conceptually, it advances the framework of "Digital Social Entrepreneurship for Tourism Recovery," offering a model that integrates virtual engagement, sustainable business practices, and social empowerment. The study bridges theoretical gaps between digital transformation and community entrepreneurship, providing a new analytical lens for post-pandemic recovery studies. Methodologically, the use of qualitative comparative analysis supported by case-based evidence provides a grounded understanding of how technology-driven tourism ecosystems operate in real social contexts. The research contributes a replicable framework that can inform both academic discourse and policy development related to sustainable tourism innovation. The limitations of this study stem mainly from its qualitative focus and geographic scope restricted to selected tourism villages in Bali. The findings, while contextually rich, may not fully represent the diversity of tourism practices across Indonesia or other developing economies. The absence of quantitative economic impact

analysis also limits the ability to measure long-term financial outcomes of virtual tourism models. Future research should employ mixed-method approaches to assess economic, social, and environmental impacts more comprehensively. Expanding the study to include comparative analyses between regions or integrating advanced digital analytics such as AI-based engagement tracking would deepen understanding of how virtual tourism can evolve as a scalable strategy for inclusive and sustainable rural development.

AUTHOR CONTRIBUTIONS

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; Investigation.

Author 3: Data curation; Investigation.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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