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Digital Transformation in Bilebante Green Tourism Village: its Impact on Sustainable Economic Development

Sonalia Safitri¹, Tutik Sukmalasari Putri²

Department of Sharia Tourism, UIN Mataram¹, STIE 45 Mataram²

Corresponding e-mail: Sonaliasapitrona@gmail.com¹, tutik.sukmalaputri02@gmail.com²

ABSTRACT

Digital transformation in the rural tourism sector has an impact on sustainable economic development. The purpose of this study is to analyze the implementation of digital transformation in the Bilebante Green Tourism Village and its impact on sustainable economic development in the economic, social, and environmental aspects. This study used a descriptive qualitative method conducted through in-depth interviews with tourism village managers and MSMEs. The results show that the application of digital technologies such as social media, online reservation systems, digital literacy training, and cashless payments can improve the efficiency of tourism management, expand promotional reach, and strengthen community participation in creative economic activities. From an economic perspective, digitalization increases community income and productivity, while from a social perspective it can encourage empowerment and collaboration. From an environmental perspective, it can reduce promotional waste and support green tourism practices. Thus, digital transformation is a strategic factor in strengthening the competitiveness of Bilebante Green Tourism Village and realizing inclusive and sustainable economic development.

Keywords: *Digital Transformation, Green Tourism Village, Bilebante, Sustainable Economic Development.*

INTRODUCTION

Digital transformation has become a crucial part of sustainable economic development across various sectors, including tourism. Digital technology can also enhance the travel experience and reduce stress during the travel process (Hordov et al., 2025). In the context of village tourism, digitalization plays a strategic role in increasing competitiveness, expanding market access, and strengthening local community participation in economic activities based on natural and cultural potential (Ministry of Tourism and Creative Economy, 2021). Tourism villages, as part of a sustainable tourism ecosystem, require digital technology support to drive operational efficiency, service innovation, and digital platform-based promotions (Utama, 2020). Previous studies have shown that the use of digital technologies such as social media, online reservation systems, and digital marketing has contributed to increased tourist visits and village community income (Yuliani, 2021). Therefore, digital transformation is not just a trend, but a necessity in the development of inclusive and sustainable tourism villages. However, most existing research still focuses on tourism villages that are already advanced in terms of infrastructure and accessibility, while tourism villages located in areas with limited resources and digital access, such as the Bilebante Green Tourism Village.

Initially, the people of Bilebante Village relied on sand mining as their primary source of income. However, with increasing awareness of the negative impacts of this activity on the environment and long-term economic sustainability, the community began to transform their economy toward more environmentally friendly sectors. This collective awareness gave rise to an initiative to develop Bilebante Village as a green tourism village oriented towards sustainability principles. The community recognized that the potential of the village's natural, social, and cultural resources could be optimized through a sustainably managed tourism sector. The development of this tourism village aims not only to increase community income but also to create a *multiplier effect* that provides simultaneous social, economic, and environmental benefits (Sari, 2021). Thus, the shift from extractive activities to the sustainable tourism sector reflects a shift in the economic paradigm of rural communities, from an orientation toward exploiting natural resources to managing local potential effectively and environmentally.

However, the green tourism village of Bilebante has rarely received scientific attention. Yet, this village has enormous potential for developing eco- and agricultural-based tourism. Few studies have specifically examined how digital transformation occurs in villages like Bilebante, and its impact on sustainable local economic development. Thus, there is a research gap that needs to be filled to understand how digital strategies are

implemented in the context of green tourism villages and how technology impacts the socio-economic aspects of the local community .

This research offers novelty in terms of context, analytical perspective, and practical contribution. Contextually, this research focuses on the Bilebante Green Tourism Village, which has significant potential for developing environmentally and agriculturally based sustainable tourism, distinguishing it from conventional tourism villages that have been studied so far. Analytically, this research not only views digital transformation as a promotional tool but also integrates the concept of digital transformation with inclusive and sustainable local economic development, with a focus on community empowerment and comprehensive socio-economic impacts. Another theoretical novelty is the development of an analytical framework that simultaneously combines digital transformation, sustainable tourism, and the local economy. Practically, the results of this research are expected to serve as a reference for other tourism villages with similar conditions in implementing digital technology effectively and sustainably, as well as providing more targeted policy recommendations for the government and tourism actors at the local and national levels.

This research aims to examine the digital transformation occurring in the Bilebante Green Tourism Village and analyze its impact on the sustainable economic development of the village community. Specifically, this research will identify the implementation of digital transformation in Bilebante Green Tourism Village. How does it affect digital transformation towards sustainable economic development in Bilebante Village, especially in economic, social, and environmental aspects?

The results of this study are expected to contribute to the development of digital transformation theory and practice in the context of green tourism villages in Indonesia. Furthermore, this research can serve as a reference for local governments, tourism village managers, and other stakeholders in designing inclusive and sustainable digital strategies.

METHODS

The type of research used in this study is qualitative research with a descriptive approach. The main objective of this study is to systematically describe and understand in depth the digital transformation in the green tourism village of Bilebante. Data collection was carried out through in-depth interviews with key informants . Purposive sampling was used to select key informants, namely the management of the green tourism destination of Bilebante and local MSMEs. Data analysis used thematic analysis techniques, namely a method in qualitative analysis that aims to identify and interpret patterns of meaning of Digital Transformation in the Green Tourism Village of Bilebante: Its Impact on Sustainable Economic Development that emerge from empirical data (Sitasari , 2022) . This technique is considered relevant and effective in exploring experiences, views and responses related to digital transformation in the green tourism village of Bilebante towards sustainable economic development.

RESULTS AND DISCUSSION

1. Bilebante Green Tourism Village

Bilebante Green Tourism Village, established approximately 100 years ago, is located in Pringgarata District, Central Lombok Regency, West Nusa Tenggara. It covers an area of 28,365 square kilometers and is home to 4,264 people, the majority of whom are of working age. The village has eight hamlets, four of which are Muslim and two Hindu. The community has a high level of religious tolerance, a source of pride.

The people in this village used to rely on sand mining as a source of income but over time the community realized the potential for bad things in the future so that the community turned to looking for income, one of the potential sectors in this village is tourism because it has a double impact that can create benefits for social, economic and environment. Different from tourist villages in general that rely on natural resources as their main attraction, this village actually uses human resources in the form of community activities as its main attraction such as agricultural activities, plantations, fish farming and MSME activities. Initially, the Pijar program (cattle, corn and seaweed) was carried out which was chaired by Hj Zaenab so that people who came to conduct comparative studies learned to make tortillas from corn and seaweed from here the idea to build a tourist village emerged, in addition to the support for the formation of a tourist village is also supported by the Indonesian government program with German implemented by Bappenas and GIZ which finally created a workshop related to the formation of a tourist village in accordance with the village tourism value chain. The development plan for this tourism village naturally took into account the social, environmental, and economic aspects of Bilebante Village. Finally, in 2016, Bilebante Village was officially designated a green tourism village, where it remains today.

2. Implementation of Digital Transformation at Bilebante Green Tourism Village

The implementation of digital transformation in the Bilebante Green Tourism Village is an effort to apply digital technology to support the management and development of ecotourism-based tourism villages. Meanwhile, increasingly rapid technological developments (Suhairi et al., 2024) require various industries to be able to adapt quickly and effectively. In addition, digital utilization plays a very important role, one of which is in the tourism industry. This is also adopted by the Bilebante Green Tourism Village which utilizes digital transformation 4.0 which is often also referred to as the fourth industrial revolution and is a phenomenon that changes the way we work, learn, interact and even the way we view the world. In the context of this research, the Bilebante Green Tourism Village also applies digital transformation as conveyed by the head of POKDARWIS:

" We also use social media as a promotional tool to attract tourists to our village. Visitors can purchase items using QR code. Guests can also submit reviews on our village's official website, or if they have any complaints about service or other issues. For matters related to cleanliness demonstrations or environmental issues, we also use online media such as WhatsApp groups to make it easier and reach a wider audience."

Through the application of digital technology, tourism village managers can improve service efficiency, expand market reach, and strengthen Bilebante's image as a sustainable green tourism destination. Furthermore, the local community is provided with digital literacy training to enable them to adapt to technological developments and participate in village management. Thus, digital transformation not only drives local economic progress but also upholds the principles of environmental and social sustainability, the key characteristics of Bilebante's green tourism village.

The results of previous research show that digitalization has succeeded in increasing tourist visits, strengthening the local economy, and expanding community participation (Satkti, 2025). This also occurs in the green tourism village of Bilebante, where the implementation of digital technology has a significant impact on the community's economy.

3. Impact Digital Transformation Towards Sustainable Economic Development in Bilebante Village, in Economic, Social, and Environmental Aspects

Digital transformation has become a crucial factor in supporting sustainable economic development, particularly in the rural tourism sector. In Bilebante Village, the implementation of digital technology is not only focused on the promotion and marketing of tourist destinations, but also encompasses reservation management, improving community digital literacy, and collaborating with creative economy platforms. The impact of this digitalization is not limited to the economic aspect only, but also encompasses social empowerment and environmental preservation. Therefore, an analysis of the impact of digital transformation on sustainable economic development in Bilebante Village requires a comprehensive view from three main pillars: economic, social, and environmental, to understand its contribution to improving community welfare and the sustainability of tourist destinations. As an interview with the head of the Community Empowerment Group (POKDARWIS) revealed:

" Digital transformation has a huge impact on the economy of the people in our village. Unlike other tourist villages that rely on natural resources as their destination, the Green Bilebante tourist village utilizes human resources as its tourist attraction, such as daily community activities. All tourism activities in this village involve the community, starting from guest accommodation using community houses as homestays and other activities carried out together with the community."

These results indicate that digital transformation in Bilebante Village has had a significant impact on the local economy, not only increasing direct income through the provision of services but also strengthening social engagement and community empowerment, as the community plays a key role in tourism management. In other words, digital transformation serves not only as a promotional or management tool but also as a mechanism for optimizing human resource potential to support sustainable economic development in the village.

Furthermore, the implementation of digital transformation in Bilebante Village also includes the use of various digital platforms, such as This in accordance as explained by the head of POKDARWIS, , such as :

" In this case, digital transformation such as BCA lifestay, namely BCA mobile and website that can be used by visitors for online observation and booking both accommodation and tour packages, there is also qrис or non-cash payment that can make it easier for visitors to make payments, there are also other social media that are used as promotional media, this of course has an impact on the community's economy, because it can reach more people in this context, namely tourists, besides that digital transformation as a promotional tool is also very effective because it can reduce waste, in this case we no longer need to promote by printing pamphlets or making banners that will be easily damaged and become community waste."

Findings the show that Digitalization has a strong multiplier effect on the village economy. Wider market access through digital promotion increases tourist visits, which directly impacts residents' incomes. Furthermore, digital transformation also has a positive impact on environmental aspects , as online-based promotional strategies reduce

reliance on print media such as brochures, pamphlets, and banners, which have the potential to become solid waste. Thus, digitalization serves not only as a means of promotion and economic transactions, but also as a concrete effort to support the concept of green tourism and sustainable economic development in Bilebante Village.

In the context of aspects Environmentally, digital transformation has significantly contributed to the implementation of green tourism principles and sustainable environmental management in Bilebante Village. One direct impact of digitalization is the reduction in the use of printed promotional materials , such as pamphlets, brochures, and banners, previously used in tourism promotion activities. By shifting to digital-based promotions through social media, websites, and online marketing platforms, Bilebante Village has successfully reduced the production of non-organic waste and minimized the carbon footprint of tourism promotion activities.

Furthermore, digital technology is also used to support efficient and participatory environmental management . For example, information related to integrated waste management, reforestation, and environmental education activities is disseminated through village digital channels. This increases community environmental awareness and expands citizen participation in conservation activities. Residents can easily access information related to cleaning schedules, waste management, and organic farming practices through online groups or village social media. Furthermore, digital transformation helps villages manage tourist arrivals to ensure they do not exceed the environment's carrying capacity. The online reservation system allows village managers to monitor the number of visitors and adjust it to the available environmental capacity. This approach aligns with the principles of *responsible tourism* , which emphasizes a balance between tourism activities and natural resource conservation (UNWTO, 2017) . Thus, digitalization in the Bilebante Green Tourism Village not only strengthens the economy and social welfare, but also serves as an important instrument in .

Digital transformation drives accelerated economic growth by providing digital platforms that simplify access, expand collaboration, and increase efficiency in distribution (Priyadi et al., 2023) . Digital transformation brings benefits to consumers through ease of transactions, as well as providing operational benefits for business actors that can be improved through business model innovation (Berliandaldo et al., 2021) . From various aspects of business, especially local MSMEs, digital transformation has a major impact, such as from the promotional side. With this digital transformation, business owners can easily promote their products through social media such as Facebook, Instagram, and so on with the aim of increasing the number of buyers and increasing innovation. In addition, digital transformation also has an impact on productivity and cost efficiency in business processes, in the green tourism village of Bilebante where digital transformation is utilized by business actors to change and adjust their existing strategies, this was also conveyed by one of the MSME actors in the green tourism village of Bilebante:

"We have a target market segment ranging from the upper middle and lower middle. This happened because of the challenge of raw materials. However, after the digital transformation, we were able to meet many requests because we could get to know people who could fulfill the raw materials we needed. In addition, we formed groups that make the same product but do not need to come directly to learn but can go online to ask questions regarding the manufacturing process. Digital transformation also really helps us with promotions so that it has a big impact on improving the economy because of the increasing demand for our products."

Digital transformation in Bilebante Green Tourism Village not only increases economic productivity, but also brings about change in aspect significant social impact. Through digital literacy training provided to the community, particularly the younger generation and MSMEs, the community's ability to utilize technology has significantly improved. The digitalization process opens up space for the community to actively participate in promotional activities, tourism services, and technology-based business management. This aligns with the concept of community empowerment , where active community participation is the foundation for the successful development of inclusive tourism villages. Furthermore, digitalization encourages the formation of new social networks among community members. Communication, previously limited to face-to-face interactions, is now expanded through online media, enabling cross-group and intergenerational collaboration. Business groups, artisans, and tourism managers can exchange information and share experiences online, thereby strengthening social solidarity and a sense of togetherness in managing village potential.

Interview results The study also shows that digital transformation has increased the confidence of village communities in dealing with domestic and international tourists. Through digital interactions, the community gains new insights into global tourism trends, service standards, and consumer preferences. This not only improves service quality but also strengthens the community's social identity as key actors in sustainable tourism. Thus, digital transformation in Bilebante Village has had a positive impact on creating adaptive social capacity , strengthening community cohesion, and building an inclusive, open, and highly competitive village community in the digital era.

Based on data from the Indonesian Internet Service Providers Association (APJII), the number of internet users in Indonesia has reached 215,626,156 people, or around 78.19 percent of the total population. This figure shows an increase of 1.17 percent compared to the results of the survey in the previous period (Arif, 2023). Of the total users, around 92.7 percent use the internet for online shopping activities so that this opportunity can be utilized by local MSME managers in the green tourism village of Bilebante, in addition, with the digital transformation, especially someone with creative ideas or unique services can develop and market their products at a relatively low cost through *online platforms*, the market reach becomes wider even abroad. From the interview results it was also explained that due to the digital transformation, the challenge of raw materials for production materials can be overcome due to the cooperation obtained from technology-based activities.

4. Challenges in Implementing Digital Transformation And Strategies to Overcome It

Globalization has brought new opportunities, but also brought big challenges, especially in the fields of technology, consumer demand and economic uncertainty (Suhairi et al., 2024). This digital transformation has also created significant changes in the way we interact with each other and with the world around us. Digital platforms and social media have expanded the reach of our communications, creating space for the instant exchange of ideas and information throughout the world (Dwi Oktareza et al., 2024) . According to Soerjono Soekanto (2002), integration is a process of adjustment between different elements in society to create functional harmony. Meanwhile, digital transformation integration can also be interpreted as connecting various systems, applications, or technologies so that they can exchange data and work automatically so that digital transformation has an impact on the quality of life of the community as conveyed by the head of POKDARWIS, Hijau Bilebante tourist village, namely:

" Because of this digital transformation, there are changes in people's lives, especially Gen Z, who are often referred to as the Google generation because they are too dependent on technology, they tend to be difficult to manage and undisciplined . "

Digital transformation not only brings opportunities but also new challenges such as uneven digitalization, unclear regulations and unfair competition (Dian Sudiantini et al., 2023). Meanwhile, in the green tourism village of Bilebante, one of the challenges experienced in implementing digital transformation is the problem of internet signals, as conveyed by the head of the POKDARWIS of the green tourism village of Bilebante:

" At the moment, the challenge and obstacle to digital transformation in the village is the problem of uneven signal because in some parts of the village there is a bad signal. Apart from that, we also have difficulty in creating new content that can be used as our promotional material. "

In utilizing digital transformation, competent human resources are needed. In this case, of course, it is a shared responsibility between the government and the local community to overcome the challenges that exist in the application of digital technology in tourist villages. Local governments usually carry out strategies in the form of training which is an important factor in creating quality human resources. Training is an activity to develop the abilities, competencies, and skills of employees that are appropriate to their work (Muhammad Yusuf, 2023). Training can be a solution for employees to improve their skills according to the abilities they have. Training can also help companies or organizations create quality and competent human resources. In addition, managers can also collaborate with parties related to digital technology to carry out mentoring programs related to digitalization which can later change people's lifestyles and open up job opportunities for the younger generation.

CONCLUSION

This study discusses the implementation of digital transformation in *Bilebante Green Tourism Village* and its impact on sustainable economic development. Starting from the economic shift of the community from sand mining to the green tourism sector, this study uses a descriptive qualitative method with a literature review approach and in-depth interviews with tourism village managers and local MSMEs. The results show that the application of digital technology through social media, online reservation systems, and digital literacy training can improve tourism management efficiency, expand market reach, and strengthen community participation. Digital transformation has been proven to have a positive impact on the economic aspect through increased income and productivity, on the social aspect through community empowerment and collaboration, and on the environmental aspect through reduced promotional waste and more environmentally friendly resource management. Thus, digital transformation plays a significant role in strengthening the competitiveness of Bilebante Green Tourism Village and realizing inclusive and sustainable economic development .

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