

Culture-Based Tourism: Geographic Information System Strategy and Local Wisdom in Realizing Creative Economy in Lake Toba

Susetya Herawati^{1*}, Hadi Mulyana², Nikous Soter Sihombing³

¹Universitas Krisnadwipayana

²STIEPAR Yapari

³Institut Bisnis Informasi Teknologi dan Bisnis

Corresponding Author: Susetya Herawati susetyaherawati@unkris.ac.id

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ABSTRACT

This study aims to explore the role of Geographic Information Systems (GIS) and local wisdom in supporting the development of culture-based tourism and the creative economy in Lake Toba. The research method used in this study is a qualitative method with a case study approach. Data were collected through in-depth interviews with various stakeholders including local governments, local communities, and creative economy business actors. The results of the study indicate that GIS plays an important role in tourism planning and promotion, mapping cultural tourism locations, access routes, and supporting facilities. Local wisdom, which includes traditions and cultures such as dance, music, handicrafts, and culinary, provides a unique attraction and enriches the tourist experience. However, there are challenges such as the lack of technological skills among local communities and the risk of cultural commercialization. This study concludes that with the right support from the government, business actors, and local communities, culture-based tourism can be a driving force for sustainable creative economic growth in Lake Toba, while preserving local cultural heritage.

INTRODUCTION

Cultural tourism has emerged as an important approach in the development of tourism destinations around the world. This phenomenon combines the richness of local cultural heritage with modern innovations, including the use of Geographic Information Systems (GIS) and the application of local wisdom. Cultural tourism is also an important sector in driving local and regional economic growth. Tourism destinations rich in cultural heritage often attract significant numbers of tourists, which contributes to the income of the hotel sector, restaurants, and various small and medium businesses in the surrounding area (Simarmata, 2019). There is a very close and mutually influential relationship between the creative economy and the sustainable tourism sector. In this context, the concept of tourism is not only limited to the existence of tourist attractions, but also involves activities carried out by tourists and the purchase of souvenirs typical of the area (Pancawati, 2023).

The strategy of geographic information systems and local wisdom in realizing the creative economy is very important in the context of the development and development of a region. GIS has an important role in collecting, storing, and managing geographic data related to tourism potential, natural resources, infrastructure, and local wisdom of an area (Wibisono, 2023). By having access to this comprehensive information, related parties can make more precise and strategic decisions in planning the development of the creative economy. The integration of local wisdom in the creative economy development strategy provides important added value. By considering local wisdom in the development of the creative economy, it will be more possible to produce products and services that are in accordance with the characteristics and needs of the local community, thereby increasing the competitiveness and sustainability of the resulting economic efforts (Syahbudi et al. 2021).

In addition, GIS strategies can help identify the potential and opportunities for the creative economy in a region more accurately and efficiently (Lokantara 2019). With in-depth geographic data analysis, potential economic sectors, resource distribution points, and market behavior trends and patterns can be identified that can be utilized for the development of a sustainable creative economy. The use of GIS and the application of local wisdom in the development of the creative economy can have broad positive impacts, including increasing income, creating jobs, preserving culture and the environment, and empowering local communities (Indriani, 2020). By building a creative economy based on local wisdom and supported by GIS technology, a region can increase its competitiveness in the global market while ensuring the sustainability and welfare of its local communities (Ahmad, 2024).

The importance of geographic information system (GIS) strategy and local wisdom in realizing the creative economy in Lake Toba cannot be separated from various interrelated aspects. Lake Toba, as a tourism destination rich in natural and cultural resources, has great potential to develop the tourism sector sustainably. By utilizing GIS technology, comprehensive geographic information about tourism potential, attraction locations, and infrastructure can be collected and analyzed more efficiently (Sukriah, 2023), enabling the identification of

creative economy opportunities that have not been fully utilized. In addition, the integration of local wisdom in the development of tourism products and services will create a unique experience for tourists, enriching the attractiveness of the Lake Toba destination. Involving local communities in the development process not only increases the sense of ownership and responsibility for development efforts, but also ensures economic sustainability and cultural preservation (Wibowo, 2023). By considering aspects of sustainable development, this strategy not only aims to increase economic income but also to maintain environmental and social sustainability around Lake Toba (Hapsoro, 2020). Therefore, the integration between GIS and local wisdom is an important foundation in realizing the vision of a sustainable creative economy and providing broad benefits for the local community and environment.

Research related to geographic information system (GIS) strategies and the use of local wisdom in supporting the creative economy around Lake Toba still has gaps that need to be considered. Although the great potential of Lake Toba as a tourism destination and natural resource is widely known, the integration of GIS technology and local wisdom in the context of the creative economy has not been fully implemented. Previous research related to the integration of GIS and local wisdom has not covered all the necessary aspects. It is important to address this gap because it will allow the development of a more holistic and relevant strategy to encourage the growth of the creative economy in the Lake Toba area. By maximizing the potential of GIS technology and paying attention to local wisdom, a solid foundation can be built for sustainable development, cultural preservation, and improving the welfare of local communities. Therefore, this study aims to fill this gap by investigating the deeper role of GIS and local wisdom in the context of the creative economy in Lake Toba, as well as its impact on local and regional development as a whole.

LITERATURE REVIEW

Economy Creative

According to the Ministry of Trade of the Republic of Indonesia, the creative economy is an industry that originates from the utilization of individual creativity, skills, and talents to create welfare and employment through the creation and utilization of the individual's creative and creative power. According to Law Number 24 of 2019: The creative economy is the embodiment of added value from intellectual property that originates from human creativity, science, and/or technology. In this case, the creative economy involves various sectors, such as art, design, technology, and business, which interact and influence each other to create added value and improve the quality of life (Darsono, 2023). In dimensions economy creative, some aspects that can be noted, such as creativity; economy creative that focuses on development of ideas and creativity for create product and innovative services and different. Innovation; economy creative involving development technology and methods new for increase efficiency and production quality. Development Society; economy creative can increase quality life public with create field more work diverse and increase income. Development economy; economy creative can increase growth economy with create mark plus and increase investment. Through

understanding and integration from all dimensions, the creative economy can develop holistically and sustainably, providing significant economic, social, cultural and environmental benefits to society.

Wisdom Local

Law No. 32 of 2009 concerning Environmental Protection and Management defines local wisdom as noble values that apply in a particular community's way of life with the aim of protecting and managing the environment sustainably. Environmental Protection and Management defines local wisdom as noble values that apply in a particular community's way of life with the aim of protecting and managing the environment sustainably. Local wisdom is a view of life, knowledge, and various life strategies that are manifested in activities carried out by local communities in answering various problems in meeting their needs. Etymologically, local wisdom consists of two words, namely wisdom and local. Other terms for local wisdom include local policy (local wisdom), local knowledge, and local intelligence (Rahmatih, 2020). According to Jim Ife, there are dimensions of local wisdom regarding the dimensions of local knowledge, dimensions of local values, dimensions of local skills, dimensions of local resources, dimensions of local decision-making, and dimensions of local community group solidarity (Kinanti, 2020). Through these various dimensions of local wisdom, it shows how traditional knowledge and practices can contribute to social, economic and environmental sustainability. The study of local wisdom offers valuable insights into understanding how communities can live in harmony with their environment while maintaining their identity and cultural heritage.

GIS Strategy

Geographic Information System (GIS) is a computer-based system used to collect, store, manipulate, analyze, and display geographic data or geospatial data (Adil, 2017). GIS is used to support decision making in various fields such as land use planning, natural resource management, environment, transportation, and city facilities. Geographic Information System (GIS) is a combination of 3 main elements, namely system, information and geography (Susanto, 2021). By looking at the main elements, it is clear that Geographic Information System is one of the information systems that emphasizes the element of "Geographic Information". Geographic Information System is a type of software that can be used for input, storage, manipulation, display and output of geographic information along with the attributes of the Geographic Information System (Perrina, 2021). Geographic Information System (GIS) strategies make a significant contribution to the tourism industry in various ways, from destination planning and management to promotion and enhancing the tourist experience. In destination planning and management, GIS enables spatial analysis that helps identify strategic locations for the development of tourism facilities, such as hotels, restaurants, and new tourist attractions. In addition, GIS facilitates the management of natural and cultural resources, ensuring the preservation and management of tourism impacts on the

environment. According to Tomlinson (2003), GIS-based analysis enables the selection of appropriate locations for tourism development and sustainable resource management (Safruddin, 2021).

Based Tourism Culture

Cultural tourism is a form of tourism that focuses on experiencing and exploring the cultural aspects of a destination, including the cultural heritage, traditions, arts, and lifestyles of the local community (Teguh, 2024). It involves participating in activities that allow tourists to gain a deeper understanding of the local culture, enrich their travel experience, and support the preservation and development of cultural heritage (Sugiyarto, 2018). Cultural tourism involves an in-depth and comprehensive experience of the cultural aspects of a destination. The cultural heritage dimension is at the heart of this experience, where tourists can explore historical sites, museums, monuments, and traditional architecture to understand the history and cultural richness of a place. In addition, participation in local traditions and festivals is also an important part of cultural tourism, where tourists can experience and appreciate the traditions of the local community through unique cultural celebrations. Exploration of art and creativity is also an important dimension, where tourists can explore local fine arts, music, dance, and handicrafts to gain insight into the cultural expressions of the local community. Finally, the local lifestyle dimension allows tourists to interact with local people, try local cuisine, and participate in daily activities to experience the lifestyle and cultural values embraced by the community (Darmayanti, 2020).

METHODOLOGY

The research method used in this study is qualitative with a case study approach. This approach was chosen because it allows researchers to gain an in-depth understanding of complex phenomena related to the development of culture-based tourism and creative economy in Lake Toba through geographic information system strategies and local wisdom. Case studies allow researchers to understand the local context holistically, exploring the perspectives of key informants, namely creative economy actors around the Lake Toba tourism area. Data collection techniques in this study were through in-depth semi-structured interviews with key informants and direct observation at tourism locations. The data collected will be analyzed using an inductive approach. The analysis was carried out by identifying the main themes, patterns, and relationships between data that emerged from interviews, observations, and document studies. This analysis process will involve data coding, thematic grouping, and holistic interpretation of the results. This analysis will provide an in-depth understanding of the dynamics of the development of culture-based tourism and creative economy in Lake Toba, as well as relevant policy implications.

RESEARCH RESULT

Cultural tourism in Lake Toba has made a significant contribution to the development of the creative economy in the region. The Head of the Regional Tourism Office explained that Geographic Information Systems (GIS) play an

important role in tourism planning and promotion. With the help of GIS, cultural tourism locations, access routes, and supporting facilities can be mapped in detail, helping tourists find tourism potential spread around Lake Toba. This also facilitates the identification of areas that require further development and management of the environmental impact of tourism activities. Local wisdom is at the heart of tourism development in the Lake Toba region. Local traditions and cultures such as dance, music, handicrafts, and folklore remain an integral part of the Lake Toba tourism experience. Tourists can join ulos-making workshops and learn about the philosophy behind the motifs. Regular cultural festivals not only attract many tourists but also provide additional income for local communities, strengthening cultural identity while creating sustainable creative economic opportunities. However, there are several challenges in integrating GIS and local wisdom, such as the lack of technological knowledge and skills among local communities being the main obstacle. Therefore, continuous training and education are needed. In addition, maintaining a balance between tourism commercialization and cultural preservation is a challenge in itself. The focus on economic gain can sometimes threaten the authenticity of local culture, so continuous efforts are needed to ensure that tourism does not damage but instead strengthens local culture.

Creative economy entrepreneurs also feel the positive impact of this culture-based tourism. Local art gallery owners note that tourism has increased interest in paintings and crafts inspired by Batak culture. Art exhibitions and painting workshops held by galleries always attract many participants, increasing revenue and introducing Batak art and culture to the wider community. Traditional culinary entrepreneurs add that using traditional recipes passed down through generations to serve Batak specialties is a major attraction for tourists seeking an authentic culinary experience. Their businesses are growing with the increasing number of tourists, and training the younger generation in cooking traditional foods helps preserve cultural heritage while opening up new job opportunities. Ulos artisans use GIS to map strategic locations to market their products, while ethnic fashion designers create unique clothing that combines ulos motifs with modern designs. Both types of businesses sell not only products but also cultural experiences, which are highly valued by tourists. Cultural tourism service providers recognize that maintaining the accuracy of information in GIS and integrating local wisdom into tour packages requires a deep understanding of Batak culture and sensitivity to local values. However, when done correctly, this cultural tourism provides an immersive experience for tourists and supports cultural preservation as well as providing positive economic impacts for local communities. Overall, culture-based tourism in Lake Toba not only enriches the experience of tourists but also encourages sustainable creative economic growth. Continued support and synergy between the government, business actors, and the community are essential to overcome existing challenges and ensure the success of this initiative.

DISCUSSION

This study found the importance of integrating Geographic Information Systems (GIS) and local wisdom in developing culture-based tourism in Lake Toba, as well as its impact on the creative economy. These findings underline several key aspects that need to be considered in an effort to optimize the potential of tourism and the creative economy in the region. GIS has proven to be a very effective tool in supporting tourism planning and promotion in Lake Toba. GIS's ability to map cultural tourism locations, access routes, and supporting facilities provides great benefits for tourism managers and tourists. The spatial data provided by GIS allows for better planning in developing tourism infrastructure and managing environmental impacts. This is in line with previous studies showing that GIS can improve efficiency in managing tourist destinations.

The integration of local wisdom into culture-based tourism provides significant added value. Tourists not only enjoy the natural beauty of Lake Toba but also gain an in-depth experience of Batak culture. Ulos-making workshops, cultural festivals, and traditional culinary are real examples of how local wisdom can increase tourist appeal. This is supported by Choirunnisa et al (2022) who stated that cultural tourism can increase the value of tourist experiences and contribute to the preservation of local culture. Culture-based tourism has had a positive impact on the creative economy in Lake Toba. Business actors such as art gallery owners, culinary entrepreneurs, and ulos craftsmen feel an increase in income and exposure through tourism. This shows that culture-based tourism can be a driving force for a sustainable creative economy. Creative products produced by local communities not only meet tourists' needs for authentic souvenirs but also strengthen Batak cultural identity. This finding is consistent with research by which states that cultural tourism can be a catalyst for the creative economy. From a policy perspective, the results of this study emphasize the importance of continued support from the government and various stakeholders in developing sustainable culture-based tourism. Policies that encourage technology training, cultural preservation, and responsible tourism management are needed. In addition, collaboration between the government, business actors, and local communities must be strengthened to ensure synergy in the development of tourism and the creative economy.

CONCLUSIONS AND RECOMMENDATIONS

This study confirms that the integration of Geographic Information Systems (GIS) and local wisdom in culture-based tourism in Lake Toba has made a significant contribution to the creative economy in the region. GIS has proven effective in tourism planning and promotion, mapping cultural tourism locations, access routes, and supporting facilities, which facilitate visitors and tourism managers. Local wisdom, through various traditions and cultures such as dance, music, handicrafts, and culinary, provides a unique attraction and enriches the tourist experience, while supporting the preservation of Batak culture. However, there are challenges that need to be addressed, such as the lack of technological skills among local communities and the risk of commercialization of culture that could threaten its authenticity. Solutions in the

form of sustainable technological training and policies that support cultural preservation are urgently needed. With the right support from the government, business actors, and local communities, culture-based tourism can be a major driver of sustainable creative economic growth in Lake Toba, bringing economic benefits and preserving local cultural heritage.

ADVANCED RESEARCH

Future research can focus on developing an integrative, community-based model to optimize the use of GIS in managing culture-based tourism in Lake Toba. This study could further explore how sustainable technology training, digital marketing strategies, and cultural protection regulations can be effectively implemented and embraced by the Batak indigenous communities. Additionally, it is important to evaluate the long-term impact of integrating GIS and local wisdom on maintaining the balance between creative economic growth and cultural preservation. This research may also expand its scope to include comparative studies across similar destinations to identify best practices that can be replicated on a national scale.

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