

# Sustainable Tourism Development and Competitiveness: A Systematic Literature Review the Role of Artificial Intelligence in Destination Development

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## Abstract

*Technology that is growing rapidly at this time supports the use of technology in the field of tourism development and competitiveness. The purpose of this literature research is to determine the role of Artificial Intelligence in the development of local tourism destinations. In addition, through this research, positive and negative impacts of the use of Artificial Intelligence in the development and competitiveness of sustainable tourism were obtained. The positive impact is the ease of reaching tourism locations, the ease of knowing about the tourism to be visited, making it easier for visitors to find out prices and facilities in tourism destinations, increasing the economy of residents in the local area and increasing national income. In addition, the use of Artificial Intelligence in the development and competitiveness of sustainable tourism also has a negative impact, namely, there are several jobs that are replaced by artificial intelligence. This can be detrimental to some parties but should be given a solution by providing training on.*

## Keywords

artificial intelligence;  
destination development;  
tourism competitiveness



## I. Introduction

Tourism development is one part of economic development in order to increase economic growth in a country. So that it can create jobs for the wider community which in turn can increase the income of the community as a whole which in turn can increase the prosperity of the community. In the development of tourism in an area, it is necessary to pay attention to the potential possessed by the area concerned. The more potential that exists in an area, the more feasible the area is to be developed into a tourist destination. From the social aspect, the people in the area concerned have a superior social character in the form of hospitality and are easy to accept anyone who enters their area. This social potential will make it easier to form social interactions that are more familiar and can build more harmonious human relationships, besides having various unique traditions that can be packaged into tourism products to be promoted. Tourism is a tourist activity to a place in an area or country carried out by tourists who are supported by various facilities provided by the government, entrepreneurs, the community (Hidayat, 2015). Tourist destinations are usually referred to as tourist destinations. Tourist attractions have tourist attractions, public facilities and tourist facilities that can be used properly, easy accessibility, and people who help each other to complement tourism. There are four main elements that support the implementation of the development plan, namely: 1) Availability of adequate legal instruments, 2) Readiness

of local government officials and institutions, 3) Availability of sufficient funds, and 4) Community support in achieving goals(Firdausy, 2015).

Tourism is believed to be the most profitable sector in the future. Tourist destinations are visited by various groups, regardless of ethnicity, nation, race, religion, even age(Mudrikah, Alfiah, 2014). Many tourists from within and outside the country spend their vacation time or choose a vacation spot in Indonesia. Some areas such as Aceh, Sumatra, Java, Bali, Nusa Tenggara, Kalimantan, Sulawesi, Papua and other areas are the preferred tourist destinations for tourists who come to Indonesia. Each tourism area has a different competitiveness. In the theory of competitiveness, the theory of comparative advantage and competitive advantage is known which is used as a measure of the level of competitiveness(Darmawan, 2015). The theory of comparative advantage put forward by David Ricardo refers to the advantages possessed by each region or country. competitive advantage, which is an advantage that was created in advance to have it, in other words competitive advantage is an advantage that can be developed (Nizar, 2018). According to Porter (1995), the most important thing in measuring competitiveness is the productivity of an industry both in producing goods and services. According to him, productivity can increase per capita income followed by economic growth of a country. Porter points out the importance of competitiveness for an industry because it can increase economic capacity that can increase economic growth in the long term, become a stimulator of increased productivity and the ability of independent businesses, and there is a belief that market mechanisms can lead to efficiency.

Indonesia's natural wealth is very beautiful and diverse. Each region has characteristics that reflect its regional identity. The expanse of the sea that stretches along the outskirts of the island in Indonesia, the towering mountains on the mainland, and the beauty shown by the trees along the road, do not forget historical places as silent witnesses and reminders of events that have occurred in Indonesia, and the diversity of tribes, customs and regional languages adds to the beauty of Indonesia in the eyes of the world(Ningsih R, 2014). With the alluring natural charm of Indonesia, it makes tourists who visit feel pampered. Since the closure of tourism sites in Indonesia due to the Covid-19 pandemic that hit Mother Earth, state revenues from the tourism sector have decreased. People are getting bored because there are no tourist attractions that are open. Currently, the State is slowly reviving the tourism sector, it can be found that several tourism places have started to open, however, tourists still adhere to the health protocols imposed on tourist attractions.

The development of the tourism sector should also get more attention. The tourism sector has become one of the leading sectors in various countries in the world, including Indonesia as one of the prima donna for foreign exchange earners (Hakim, 2021). The development of cultural tourism certainly requires increasing the utilization of youth potential optimally (Tambunan, 2021). The advantage of the tourism sector lies in its ability to increase foreign exchange and to drive various other business sectors such as the home industry (Nasution, 2021). Because it is very unfortunate if the tourism sector does not develop. By utilizing the technology that is currently developing, it can help the development of the tourism sector in Indonesia (Rambe, 2019). Technology can do anything. Technology is not limited by space and time, just like technology tourism can be accessed/used by various groups. And technology can also provide convenience for every user.

One of the technologies that can be applied to the tourism sector is Artificial Intelligence (AI) (Russell, Stuart and Norvig, 2020). Artificial Intelligence (AI) is a machine programmed to think like humans. Artificial Intelligence is a system on a computer that can perform activities/works that are generally carried out with human intelligence or human power to complete a particular job (Harrison, 2017). Just as humans need books/reading

resources or others and experience to be used as knowledge and increase intelligence, AI technology requires data and experience to be used as knowledge and increase intelligence so that the resulting process is even better. Artificial Intelligence learns by itself based on its experience when used by humans. In this millennial era, people must have gotten used to the presence of Artificial Intelligence. Without realizing it, Artificial Intelligence has entered all areas of life. Every day we definitely use Artificial Intelligence such as, for example, gmaps, google assistant, even when we want to shop using an application, the application knows what we want to buy, and many other examples. With the existence of Artificial Intelligence, it can facilitate human work and can increase the attractiveness of users towards tourist destinations. Artificial Intelligence can also be applied to the tourism sector. In the field of tourism, applications based on Artificial Intelligence can be made that can be accessed by anyone using a smartphone. The use of Artificial Intelligence or artificial intelligence will certainly have many positive impacts on the development of sustainable tourism, besides that of course there will also be negative impacts that will be caused. Therefore, researchers conducted a literature study on the development and competitiveness of sustainable tourism using the role of Artificial Intelligence in the development and competitiveness of tourism destinations.

## **II. Research Methods**

The method used is a literature study. At the literature study stage the author studies and understands the theories that serve as guidelines and references obtained from various books, journals and also the internet to complete the vocabulary of concepts and theories, so that they have a good foundation and knowledge to solve the problems discussed in this research and learn research that is relevant to the problem under study. As a very useful supporting material for the author to find or collect the data needed in this study, the author uses several ways, namely: a. Observation. This observation activity is carried out by making direct observations of the object to be studied in order to find out directly about tourism in the village of Karangbenda. b. Interview (Interview) The author conducts field research by conducting interviews with related parties to obtain the data needed by the author.

## **III. Discussion**

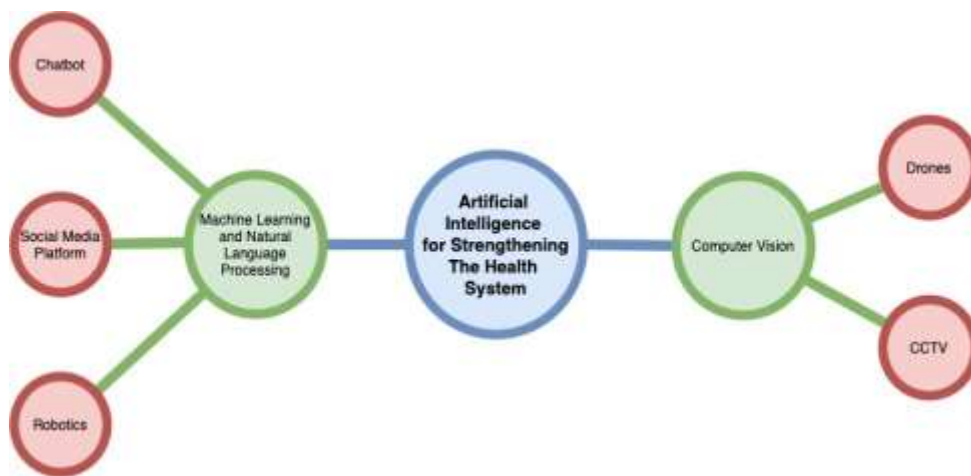
In the development of sustainable tourism Artificial Intelligence can be utilized appropriately. The use of Artificial Intelligence for the development of tourism destinations can be in the form of applications. Which in this application contains:

1. The existence of data from various tourist attractions in Indonesia such as the number of visitors, history, region and other identities.
2. This application can recommend suitable tourist attractions based on the mood of visitors.
3. After selecting a tourist destination, this application will display the route of travel and this application can ask questions and tell the history, uniqueness, advantages, culture and what is contained in each area that is passed to the tourist destination.
4. In this application there is also a chatbot feature that is active for 24 hours as a service to ask questions or chat about recommendations for tourist destinations, transportation, lodging, etc.
5. Additional features in this application include the option of ordering transportation connected to travel in Indonesia, being able to book lodging around tourist destinations, and ordering tickets at the destinations visited.

6. There online traveling where users of this application can feel vacationing in tourist attractions in Indonesia, even though via video on a smartphone.

With an application on smartphone that implements Artificial Intelligence, it will be able to help the Government, local government, businessmen and the public to find out which tourist attractions have the highest number of visitors, trends are running in the tourism sector, what facilities should be presented, which will be presented later can be explored more deeply for the development of the Indonesian tourism sector (Gooroochurn, 2017).

In addition, this application is also expected that tourists visiting tourist attractions in Indonesia can feel the ease. In addition, this application can also introduce places, cultures, and other beauties in Indonesia. This application is also expected to increase the attractiveness of tourists to visit various tourist attractions in Indonesia. The following is an image of artificial intelligence technology that can be used in tourism development.



**Figure 1.** *The Relationship between Various Artificial Intelligence for the Development of Tourism Destinations Tourism*

Development is a planned and structured effort to fix existing objects and areas and build new tourist objects and areas that will be marketed to potential tourists. The development of tourism is in principle the same as the development of tourism products, in which the development of tourism products which are tourism facilities should be adapted to the changing tastes of tourists who are very dynamic. For the advancement of tourism development, there are several efforts that can be carried out in an integrated and good manner, namely:

1. Promotion to introduce tourist objects and areas.
2. Smooth transportation
3. Ease of immigration or bureaucracy
4. Accommodation that guarantees comfortable lodging
5. Skilled tour guides
6. Offering goods and services with guaranteed quality and reasonable price rates.
7. Filling time with interesting attractions
8. Hygiene and environmental health conditions.

Therefore, the use of Artificial Intelligence in tourism can support the level of sustainable tourism growth, which can bring advanced Indonesian tourism as well as help the level of the Indonesian economy. The use of Artificial Intelligence also has many impacts on the growth and development of tourism. In the development of tourism objects and areas, it is necessary to analyze the impacts, both in terms of positive and negative, so that we can see

the benefits and risks that can be used as consideration. Theoretically, the impact caused by tourism development can be seen from the influence of tourism development on tourist destinations which can be seen as follows:

### **3.1 Positive Impact of Tourism Development with Artificial Intelligence**

Increasing National Income, Which Means Increasing Per Capita Income. National income is the accumulation of people's income, where with the development of tourism, people's income will increase by selling tourism goods and services, for example: restaurants, hotels, travel agencies, tour guides, and souvenir items. Through the development of tourism with artificial intelligence, it will increase national income because it can reduce the amount of expenditure incurred by tourism entrepreneurs, from reducing the number of employees to reducing promotional costs that can be done with artificial intelligence.

Facilitating the search for tourism locations, and navigating directions to tourism places, this greatly affects the number of visitors, because with the ease of reaching tourism places, it will be easier for visitors to make tourist visits to several tourism destinations. Increasing government revenue from taxes with the increase in people's income, both personally and conducting tourism business activities, the government will be able to increase the taxes collected.

Strengthening the position of the Foreign Balance of Payments or international balance of payments. Tourism is an invisible export, so that the development of tourism will be able to increase the exports of the country concerned which will clearly improve the international balance of payments. Ensuring that tourism products are paid at an appropriate price. In addition to the impact on the state and tourism business owners, Artificial intelligence in tourism also has a positive impact on visitors, namely obtaining references about the price of tourism to be visited so that visitors can pay a fair price and reduce disputes between visitors with tourism owners. Through Artificial Intelligence, it can facilitate the economic development of the local tourism area, it can also bring local tourism products to the international scene and turn local products into international products.

Besides that, it can also introduce and increase the existence of local culture, which can be introduced to the world and all visitors can enjoy the local culture that is displayed around the tourism location.

### **3.2 Negative Impacts of Tourism Development with Artificial Intelligence**

If there is a positive impact, then there are also negative impacts, namely:

a. Through Artificial Intelligence it can reduce the income of villagers whose jobs are

1. Tourism Guides

Because the role of guides around tourism areas will be replaced by Artificial Intelligence technology. As a guide and facilitate navigation to tourism places.

2. Promotion Division Workers

The role of promotion workers is also replaced by Artificial Intelligence, due to the existence of technology that can promote tourism with a wider reach outside the city and even abroad.

b. Land prices in tourism areas are increasingly expensive, due to the increase in the number of visitors and the number of tourism destinations making land prices soar because more people will want to live and open businesses in locations around the tourism area.

## **IV. Conclusion**

The objectives of tourism development are: 1) Improving the quality and quantity of tourism destinations, 2) Communicating Indonesian tourism destinations by using marketing



media effectively, efficiently, and responsibly, 3) Creating a tourism industry that is able to drive the national economy, and 4) Developing institutions tourism and tourism management that is able to synergize the development of tourism destinations, tourism marketing, and the tourism industry in a professional, effective and efficient manner. It is hoped that through the implementation of tourism development programs that are made, regional development and the welfare of the people around the area will increase. So that it can realize the vision of national tourism development, namely the realization of Indonesia as a world-class tourist destination, competitive, sustainable, able to encourage regional development and people's welfare. Through the development of Artificial Intelligence in tourism, it can increase tourism development while also having many positive impacts on tourism. This positive impact benefits all parties, including tourism owners, visitors and the government. With Artificial Intelligence, it is very easy for visitors to reach the tourism location they want to go to. In addition, it makes it easier for tourism owners and local communities around tourism locations to promote products that they want to sell to visitors. Other advantages are also obtained by the state, namely an increase in the economy of local residents and an increase in national income through an increase in tax payments to be made. Therefore Artificial Intelligence is very feasible to be used as one of the main supporting technologies in tourism development.

## References

- Darmawan, D. A. (2015). Dampak Integrasi Pariwisata ASEAN Terhadap Perekonomian Nasional dan Daerah, Persiapan Sektor Pariwisata Indonesia dalam Menghadapi Masyarakat Ekonomi Asean. LIPI Press.
- Firdausy, C. (2015). Perkembangan dan Pengembangan Infrastruktur dan Incestasi Sektor Pariwisata Menyikapi MEA, Persiapan Sektor Pariwisata Indonesia dalam Menghadapi Masyarakat Ekonomi ASEAN 2015. LIPI Press.
- Gooroochurn, N. & S. (2017). Competitiveness Indicators in the Travel and Tourism Industry. *Tourism Economics*, 1, 25–43.
- Hakim, M.A.A., Suryantoro, A., and Rahardjo, M. (2021). Analysis of the Influence of Tourism Growth on Economic Growth and Human Development Index in West Java Province 2012-2018. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)* Vol 4 (1): 160-169.
- Harrison, C. (2017). Artificial Intelegent for Education. *Technical Communication*, 1, 46–60.
- Hidayat, A. (2015). Respons Kebijakan Pemerintah Terhadap Liberalisasi Sektor Pariwisata dalam Skema ASEAN Tourism Integration. *Persiapan Sektor Pariwisata Indonesia dalam Menghadapi Masyarakat Ekonomi Asean 2015*. LIPI Press.
- Mudrikah, Alfiah, dkk. (2014). Kontribusi Sektor Pariwisata terhadap GDP Indonesia Tahun 2004- 2009. *Jurnal Ekonomi Pembangunan*, 1, 1–12.
- Nasution, S., Sinulingga, S., and Sufika, A. (Perception of Country Tourism on Tourism Quality in Lake Toba North Sumatera 2020. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)* Vol 4 (1): 180-188.
- Ningsih R. (2014). Analisis Potensi Daya Saing dan Kebijakan Pengembangan Sektor Pariwisata di Kabupaten Jember. *Universitas Jember*.
- Nizar, M. (2018). Pengaruh Pariwisata terhadap Pertumbuhan Ekonomi di Indonesia. *Jurnal Kepariwisataan Indonesia*, 2, 195–211.
- Rambe, R. (2019). *Used Artificial Intelegence for Economic* (Cendekia Press (ed.)).
- Russell, Stuart and Norvig, P. (2020). *Artificial Intelligence A Modern Approach Fourth Edition*. In *Pearson Series in Artificial Intelligence*.

Tambunan, A.A., Sibarani, R., and Asmara, S. (The Role of Youth in the Development of Cultural Tourism in Tipang Village, Baktiraja District, Humbang Hasundutan Regency. Budapest International Research and Critics Institute-Journal (BIRCI-Journal) Vol 4 (1): 144-152.