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A SYSTEMATIC LITERATURE REVIEW ON SUSTAINABILITY AND USE OF ARTIFICIAL INTELLIGENCE IN TOURISM AND HOSPITALITY: TRENDS AND CHALLENGE

Akansha Sengar [1], Dr. Urvashi Kumari [2]

[1] Research Scholar, GD Goenka University, Sohna-Haryana, Sohna, Haryana, India
[2] Assistant Professor, School of Hospitality and Tourism, GD Goenka University, Sohna-Haryana, Sohna, Haryana, India

Corresponding Author

Akansha Sengar,
sengarakansha21@gmail.com

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ABSTRACT

Tourism and hospitality are increasingly recognized as significant drivers of the economy in India. While the concept of sustainability has been extensively discussed in social and scientific research for the past two decades, its application to the hospitality sector is a relatively recent focus. This application raises several challenges but also presents opportunities for competitive advantage.

In this research paper, we aim to explore the concept of sustainability in hospitality, conducting a theoretical review of key research areas and suggesting future avenues for investigation. This digital era has introduced new challenges to companies, affecting operations on a global scale and transforming relationships and behaviours. Because nowadays everything revolves around digital media, making it one of the most important modes of communication such as use of AI and smart sensors, IOT (Internet of Things) like Alexa to promote sustainability.

This research contributes to the fields of sustainability, tourism, hospitality, and communication. We conclude with future guidelines for research and practice in these areas.

Keywords: Tourism, Hospitality, Sustainability, Communication, Trends

1. INTRODUCTION

With the use of large data, complex algorithms, and advanced computing, digital technology has revolutionized operations and decision-making processes in a number of businesses (Markides, 2006). The adoption of digital technology in the tourist sector has been driven by its ability to extract important insights from large databases and provide travelers with individualized experiences (Khan, Yusoff, Kakar, 2017). The ability of digital technology to analyze a variety of data sources, such as social media, booking platforms, and real-time travel data, is what is driving its integration into the tourism industry. This allows businesses and destinations to better understand and accommodate the preferences of travelers (Hallak et al., 2012; Xiang et al., 2017). Travelers receive personalized itineraries and activity suggestions through digital technology-powered recommendation systems, which improves their entire experience (Buhalis & Amaranggana, 2015).

Additionally, digital technology uses automation to streamline repetitive activities. Digital technology-driven chatbots and virtual assistants enhance customer service, quickly respond to questions, and streamline back-end processes like resource management and logistics (Fu et al., 2019; Zhang et al., 2019). Digital technology is essential to the management of sustainable tourism at the destination level. Digital technology helps manage tourist flows, mitigate overtourism, and promote fair distribution across locations by studying visitor movement patterns and peak seasons (Gretzel et al., 2015; Xie et al., 2020).

Notwithstanding these advantages, there are drawbacks to the use of digital technology in the travel industry, including the loss of jobs and moral dilemmas with regard to algorithmic bias and data protection (Samoili et al., 2020). To fully utilize the promise of digital technology and guarantee favorable results for communities and enterprises, responsible implementation is crucial. But when used wisely, digital technology may advance the travel and tourism sector by providing unmatched insights, improving visitor experiences, and supporting a more environmentally friendly and sustainable method of travel (Tussyadiah, 2020).

2. RESEARCH GAP

Artificial intelligence can't completely replace human intelligence in some situations, despite its great potential. We in the tourism and hospitality sectors firmly think that human touch, guest connection, and personalization are crucial. Additionally, there is growing worried regarding the decision-making processes because there are a number of scenarios in which we cannot rely on AI to make decisions because guests are involved, and those decisions must be made appropriately for the circumstances.

3. RESEARCH OBJECTIVES

- To determine how artificial intelligence is influencing the travel and hospitality industry.
- To learn about the newest technology being used in the travel and hospitality industry.

4. RESEARCH METHODOLOGY

This research work is entirely based on a review of the literature on the subjects of artificial intelligence and sustainable tourism, including research papers, articles, newspapers, journals etc.

5. LITERATURE REVIEW

Utilizing Digital Technology for Regenerative Tourism:

Digital technology is now a potent weapon in the tourism sector's fight for sustainability and balance. According to Chang and Yang (2008), this cutting-edge technology promotes better environmental awareness and sustainable behaviors throughout the tourism ecosystem by streamlining operations and improving user experiences. The applications of digital technology in the context of sustainable tourism are highlighted in the following areas.

Using the Right Software in Hotels and Other Accommodations:

One major factor influencing the hospitality industry's environmental effect is its energy use. Hotels and lodging providers can optimize energy use, cut carbon emissions, and save operating expenses with the aid of AI-driven smart energy management systems (Hallak et al., 2012). These systems monitor and regulate energy-intensive operations like as lighting, heating, cooling, and appliance use by utilizing real-time data from smart sensors and Internet of Things devices. In order to ensure that energy is used efficiently without sacrificing visitor comfort, artificial intelligence (AI) algorithms evaluate the data and make intelligent modifications based on occupancy levels, weather, and other factors (Gössling et al., 2020). Hotels may reduce their carbon footprint and aid in the general preservation of natural resources by supporting sustainable energy practices.

6. TRANSPORTATION AND EMERGING TECHNOLOGIES

The tourism sector's transportation sector significantly contributes to carbon emissions. By increasing the effectiveness of transportation networks and routes, AI-powered solutions for transportation optimization can aid in the reduction of carbon emissions. To find the most efficient routes, lessen traffic, and encourage environmentally friendly transportation options like electric automobiles or public transportation, for instance, AI systems can evaluate historical and real-time transportation data (Zhang et al., 2019). Through reduced fuel use and emissions as a result of these AI-driven optimizations, travel experiences become more environmentally friendly and sustainable.

7. AI-POWERED CUSTOMIZED SUGGESTIONS FOR ECO-FRIENDLY EVENTS AND ACTIVITIES

Traveler preferences, historical behavior, and the state of the environment are just a few of the vast amounts of data that AI-driven personalized recommendations for eco-friendly experiences and activities use to make their recommendations. AI-powered platforms can suggest a range of eco-friendly options, such as wildlife tours, organic farm visits, nature walks, or eco-friendly lodging, for visitors who are concerned about the environment and are visiting sustainable destinations (Xiang et al., 2017). Travelers can interact with a destination's natural beauty and cultural heritage in ways that are consistent with their sustainability principles by following these recommendations, which go beyond standard tourist attractions. Artificial Intelligence (AI) improves customer happiness and creates a stronger bond with environmentally responsible products by tailoring experiences to individual tastes.

When incorporated into smartphone apps or other smart devices, AI-powered virtual assistants serve as eco-friendly travel consultants, assisting conscientious tourists in making wise selections all along their travels. According to Zhang et al. (2019), these virtual assistants can respond to inquiries concerning eco-friendly travel, eco-certified lodging, recycling centers, and regional eco-initiatives. Furthermore, real-time updates on environmental conditions, conservation initiatives, and eco-tourism policies are provided via AI-driven virtual assistants, enabling passengers to comprehend their impact on the ecological balance of a place. AI-driven virtual assistants help passengers make sustainable decisions and actively contribute to the preservation of green places by providing them with timely and personalized guidance.

8. PROMOTING SUSTAINABILITY CONSCIOUSNESS AND INSTRUCTION

AI has the potential to significantly improve sustainability awareness and education for tourists and local communities in addition to providing individualized advice. Chen, L., and associates (2022).

The Association Between Tourism and Artificial Intelligence:

Artificial intelligence (AI) has a dynamic and revolutionary interaction with the tourism sector, drastically changing many areas of the tourist experience. Several crucial dimensions can be used to understand this relationship:

Improved Customer Service:

Chatbots and virtual assistants driven by AI are now typical in the travel industry. These AI-powered solutions respond to consumer questions instantly, make tailored recommendations, and help with activity and lodging reservations. This improves the general quality of customer service by increasing its responsiveness and efficiency. Law R, Tung VWS (2017)

Better Personalization and Marketing:

AI makes it possible to analyze enormous volumes of data in order to comprehend the preferences and actions of travelers. Tourism companies may design highly focused marketing campaigns, customized discounts, and content for individual customers with this data-driven strategy. Shapira B, Rokach L, and Ricci F (2015).AI also makes dynamic pricing methods possible, which improves revenue control.

Demand Forecasting and Resource Optimization:

Artificial intelligence algorithms are capable of predicting demand for travel destinations, lodging, and services by examining past data, present trends, and outside variables. This aids companies in efficiently meeting demand by optimizing price, inventory control, and resource allocation. Schwartz Z, Yu G (2006)

Sustainable Tourism:

AI is being utilized more and more to help tourism-related sustainability projects. Artificial intelligence (AI) can be used to improve trash management, control hotel energy use, and encourage environmentally beneficial modes of transportation. 2015. Stalidis G, Vafeiadis A, and Karapistolis D. In doing so, it lessens the impact of tourism on the environment.

Intelligent Travel Spots:

Artificial intelligence (AI) technologies are being used to build intelligent travel spots. To effectively manage traffic, provide visitor information, and manage crowds, these attractions leverage AI-driven technologies. Wang, W., and associates (2020). With its real-time information and suggestion system, AI can improve the entire visitor experience.

Accessibility and Language Translation:

AI-driven real-time language services and translation tools are removing language barriers for foreign visitors, increasing the number of people who can enjoy tourism even if they don't speak the native tongue.

Preservation of Culture and Heritage:

Cultural heritage sites are being promoted and preserved through the use of AI applications like augmented reality (AR) and virtual reality (VR). While visiting historical and cultural sites, travelers can access interactive and educational content via AI-powered mobile apps and gadgets. Moore T, Winstanley A, Amirian P, and Basiri A (2018)

AI is being used more and more in the tourism industry for crisis management. Real-time weather monitoring, natural catastrophe detection, and risk assessment are all made possible by AI-powered systems, which also contribute to the safety of tourists and the continuation of tourism-related activities. Miller G. and Tussyadiah I. (2019)

Inclusivity and Accessibility:

AI can make travel more accessible for those with disabilities. For those with varying needs, voice-activated services, mobility aids, and AI-powered navigation apps can improve the travel experience.

Ethical Considerations:

As AI is used more frequently in the travel industry, ethical issues including data privacy, algorithmic bias, and job displacement are coming into focus. It is imperative that these ethical issues are addressed if responsible AI development is to occur in the sector. Sigala M. (2018)

9. CONCLUSION

The tourism sector and artificial intelligence (AI) are collaborating in a dynamic and disruptive way that has significant ramifications. The literature that this analysis analyzed offers insightful information about the complex effects of artificial intelligence on tourism.

AI is now a potent tool for improving a number of aspects of the travel experience. The advantages are evident, ranging from AI-powered chatbots that enhance customer support to tailored recommendations that increase revenue. Chen, J., and others (2021). Furthermore, AI's predictive powers have improved demand forecasting in the hospitality industry, resulting in more cost-effective resource allocation.

AI has also made it easier to create smart destinations, which improves visitor friendliness and sustainability in the tourism industry. By using personalized content to target audiences and increase engagement and conversion rates, it has also completely transformed marketing initiatives. Wichert R, Aarts E (2009). Artificial intelligence (AI) applications have been expanded to increase visitor experiences and operational efficiency. These include the management of tourism attractions, event planning, and even travel insurance underwriting.

But it's important to acknowledge the ethical issues that this research have brought to light. The necessity for responsible AI development and the application of safeguards to promote justice and fairness in the tourism industry is highlighted by the possibility of AI bias and worries about employment displacement. Chen and colleagues (2017).

With regard to the future, artificial intelligence in tourism presents even more fascinating opportunities, such as increased crisis management, more accessible travel options for a wider range of passengers, and immersive experiences powered by AI. The tourist industry's landscape will probably continue to change as AI technologies are increasingly incorporated into the sector. Chen and colleagues (2020).

It is our responsibility as researchers and practitioners to strike a balance between utilizing AI's benefits for tourism and addressing its moral and societal ramifications. By doing this, we can make sure that the fusion of artificial intelligence and tourism is advantageous to all parties involved and not just revolutionary.

10. FUTURE CONVERSATION TOPICS

Research on AI in Sustainable Tourism: You might want to look into doing a study that focuses on how AI might help promote sustainable tourism practices. Examine how the tourism sector may reduce its environmental effect by increasing energy efficiency, cutting waste, and maximizing resources with AI technologies.

Examine how artificial intelligence (AI) can make tourism more accessible to visitors with a range of demands. Investigate AI-driven travel assistance for individuals with impairments, language challenges, or other accessibility needs in an effort to promote inclusivity in travel.

Explore the topic of privacy and data security in the context of AI applications in tourism, keeping in mind the concerns expressed in certain research. Look into the finest ways to handle private concerns and handle sensitive client data.

Effect of AI on Job Displacement: Examine how AI may affect employment opportunities in the travel and tourism sector. Conduct research to determine how the tourism industry's employment market is impacted by the use of AI technology and investigate appropriate transition management techniques.

AI and the protection of Cultural Heritage: Look at the ways that AI can support the promotion and protection of cultural heritage in the travel industry. Examine apps like augmented reality experiences, AI-driven museum guides, and language translation for cultural locations.

Travel Planning with AI: Examine how AI can improve travel arrangements. Provide an AI-powered trip planning tool that generates eco-friendly vacation itineraries by taking sustainability into account in addition to suggesting destinations and activities.

CONFLICT OF INTERESTS

None .

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