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Smart Tourism: Conceptual Aspects and Related Issues

Dr. Amit Kumar Chakrabarty

Assistant Professor in Commerce, Department of Commerce, Nabadwip Vidyasagar College, Naida, West Bengal, India
dr.amitkbb@gmail.com

ABSTRACT

The dynamic linking of human experiences with smart technologies is termed as smart tourism. It is strongly related to the development of Smart Cities and goes hand in hand with advancements in technology such as AI, IoT, Big Data, and 5G. The present paper deals with the conceptual aspects of smart tourism and its related issues. This study is purely based on the information collected from different sources like websites, articles published in reputed national and international journals, books, newspapers and reputed reference books related to this field. The idea of smart tourism originates from the concept of smart city. The study reveals that smart tourism is purely technology based tourism which facilitates tourists by all means. Smart tourism depends upon the development of smart cities, artificial intelligence, 5G network, innovative technologies and some applications. There are some adverse impacts and risk perceptions of smart tourism. It threatens environmental sustainability.

Key Words: Smart Tourism, Smart City, AI, 5G, IoT, Big Data

Introduction

One of the key factors in sparking a nation's economy is tourism. In this environment, smart tourism has become one of the key elements for increasing a nation's revenue, advancing its total technology capabilities, and fostering a sense of cultural interaction between its residents and visitors. However, one of the key elements for improving the accessibility and adaptability of the destinations is the use of cutting-edge technologies. Through a Google search, tourists can find all the information about the tourist attraction and choose the location they need to be at. In light of this, smart tourism acts as a platform for the adoption of ICTs including cloud computing, the Internet of Things, artificial or virtual intelligence, and related technologies. Tourists can receive tailored information and improved services during their trip thanks to these cutting-edge technologies. The use of technology in the travel and tourism sector is crucial since it offers chances for daily business operations and enhances the consumer experience. Taking into account these factors, the introduction of digital technologies has assisted travellers in completing cashless payment, which is not only user-supportive but also increases travel security. Additionally, improved voice search relevancy has become one of the cutting-edge innovations that most effectively supports tourists. However, given the implications of the COVID 19 epidemic, smart tourism and better technology use has captured the attention of all travellers, with customer expectations moving significantly. Smart technologies, in addition to supporting employees and corporate organisations, have been giving assistance in terms of cost reduction, time savings, and, as a result, producing an upgraded and smooth travel experience for all travellers. Smart technologies can help tourism firms improve their processes, automate their entire offerings, and provide user-friendly services that previously required less human participation. As human error lowers, travellers will be able to receive better services with less inconvenience. As a result, it can be argued that clever solutions to complicated challenges are being supplied to businesses as well as tourists by introducing smart technologies in tourism.

Literature Review

There is scarce of past research on the present field. In spite of that some previous works has been presented below:

Although ICT is crucial, smart tourism is more about agility than it is about technology. Smart tourism is influenced by smartness factors such as human capital, social capital, governance, and innovation. "Smartness is fostered by open innovation, supported by investments in human and social capital, and sustained by participatory governance, in order to develop the collective competitiveness of tourism destinations to enhance social, economic and environmental prosperity for all stakeholders and generate value for visitors." (Buhalis, 2013).

"Smart tourism system includes five elements such as Information Exchange Center (IEC), tourists, government, scenic zones and business". (Zhu, Zhang & Li, 2014). IEC is linked to other elements, and information flows both ways through IEC.

Tourists nowadays search for information utilizing ICT through various search inquiries and receive appropriate information as a response from IEC. Businesses promote their products through advertisements in various mediums such as social media, electronic media, and print media in order to maximize their return on investment. The key purpose of IEC in tourism is to sustain beautiful zones; thus, reports are generated by IEC utilizing statistical

data to monitor the activities at the destinations on a regular basis. Finally, the IEC assists the government in managing stakeholders and developing tourism policies.

According to Gretzel, U. et al. (2015), 'smart' has become a catchphrase to define technological, social, and economic advances driven by new technologies through the use of sensors, connectivity, big data, and information exchange between industry and end users. When tourism is added to the phrase, it becomes clear that it refers to smart destination development, smart experiences, and smart business processes.

Smart tourism includes smart destinations, smart business systems, and smart expressions of experience and information or data (Vasavada & Padhiyar, 2016). Data is linked to the other three, and they are linked to each other through information gathering, exchange, and processing.

Choudhury and Dixit (2018) conclude that because tourism requires long-term development, policies should be developed that include the development of overall road infrastructure for better accessibility, affordable lodging and restaurants, airport accessibility, continuous access to basic amenities such as water and electricity, and tourism information centers for tourist guidance.

In the present study the author proposed to explore the concept of smart tourism as well as its related issues.

Objective of the Study:

Objective of the present study is to explore the following issues:

1. Concept of Smart Tourism
2. Impact of Smart Cities on Tourism Industry
3. Application of Artificial Intelligence in Tourism Industry
4. Impact of 5G on Smart Tourism
5. Instances of Smart Tourism
6. Smart Tourism Applications
7. Use of Groundbreaking Technologies in Smart Tourism
8. Adverse Impacts and Risk Perceptions of Smart Tourism

Methodology

This study is purely based on the information collected from different sources like websites, articles published in reputed national and international journals, books, newspapers and reputed reference books related to this field. Phase wise discussion on different aspects relating to Smart Tourism has been done to realise the objectives of the study. Finally the author reaches to the conclusion and recommends something for better implementation of Smart Tourism concept in India.

Discussion

1. Smart Tourism: Definition and Concept

The dynamic linking of human experiences with smart technologies is termed as smart tourism. It is strongly related to the development of Smart Cities and goes hand in hand with advancements in technology such as AI, IoT, Big Data, and 5G.

The purpose of smart tourism is to improve resource management efficiency, maximise competitiveness, and increase sustainability through the use of innovative technologies. As a result, an increasing number of locations are embracing this modernisation of their operations, from payment methods to numerous interactive activities.

The European Capital of Smart Tourism, define a smart destination as:

'A destination facilitating access to tourism and hospitality products, services, spaces and experiences through ICT-based tools. It is a healthy social and cultural environment, which can be found through a focus on the city's social and human capital. It also implements innovative, intelligent solutions and fosters the development of entrepreneurial businesses and their interconnectedness.'

2. Impact of Smart Cities on Tourism Industry

The Smart Cities growth is having an impact on various industries, including tourism, which is progressively shifting towards a smart destination model. Smart tourism development is inextricably linked to the expansion of Smart Cities. These cities seek to improve the quality of life for their residents while also generating more sustainable environments. As a result, smart tourism follows these endeavours by providing richer and more environmentally

responsible experiences. This new manner of travelling across cities is evolving as a result of the importance of tourism as a strategic economic activity in many countries.

Some critical points for smart tourism consolidation in a smart city are:

- Cutting-edge infrastructure ensures long-term development and promotes fair access.
- Free WiFi in public areas and on the street.
- Electric mobility as a viable alternative to traditional modes of transportation.
- Promotion of more environmentally friendly tourism.
- Real-time data such as traffic flow or public transit incidents.
- Cultural and interactive events

3. Application of Artificial Intelligence in Tourism Industry

Artificial intelligence has several applications in the tourism industry, both for consumers and for businesses. In the first scenario, it enables users to access the most relevant information more quickly, increases their mobility, improves their decision-making, and enhances their tourism experience. AI assists entrepreneurs in resource management, particularly in promotion and productivity, as well as in developing a more sustainable business model. The following are some of the most common examples:

Personalization and recommendation systems: AI makes available to users the alternatives that best suit them, with personalised suggestions for each scenario and decreasing the limitless number of options that do not always fit. Companies can construct detailed profiles and personalise their experiences to each scenario thanks to the information made available to them.

Conversational systems, such as chatbots and voice assistants: The use of technology such as natural language processing (NLP) and speech recognition, and are highly beneficial since users may use them at any time through a more personalised experience that replicates the human one. Furthermore, with the usage of chatbots, firm employees no longer have to waste time on these types of jobs and can devote their time to more important ones.

Forecasting tools: future projections are made utilising historical and contextual data to help make better judgments. It is used in the tourism industry to understand the tourist demand of each period and area in order to design marketing strategies, financial management, and human resource allocation, detect frauds, and support facility management.

Translation applications: Contact with diverse cultures and languages is one of the foundations of tourism. However, it is also one of the most significant obstacles for travellers while deciding on a trip and avoiding sources of discomfort. Machine translation allows users to traverse each destination more easily, allowing them to explore and participate in a variety of activities.

4. Impact of 5G on Smart Tourism

New applications dependent on quicker device connectivity will emerge as a result of the development of 5G networks. When applied to tourism, we are referring to solutions that travel businesses or towns can employ to attract visitors by providing a more appealing experience. Changes in this industry will emphasise higher personalization of services, improved access to information and material, high-quality entertainment, and optimised operations. A fast internet connection, on the other hand, can be a deciding factor in whether or not a guest returns to the hotel, especially if it is a business trip. 5G solves these issues while also assisting in the adoption of smart features such as lights and thermostats controlled by a mobile device. It is also a necessary technology for other technologies, such as augmented reality, to function properly. Many museums have already added tablet or glasses-based experiences that gamify the standard experience or live tours. In reality, as this technology becomes more prevalent in passenger management and aircraft maintenance, it will become a critical factor in airports. Even solutions that rely heavily on artificial intelligence, such as aided vision, will join the market.

5. Smart Tourism: Instances

There are more and more instances of smart tourist locations all around the world. Indeed, initiatives such as the European Capital of Smart Tourism, which aims to increase awareness of smart tourism tools, measures, and projects conducted in cities in four categories: sustainability, digitization and cultural heritage, accessibility, and creativity, have evolved.

We have created a list of some of the most notable cases, although there are many more:

El Hierro, a Spanish island, has become the world's first smart island to attain energy self-sufficiency, as well as to reduce pollution levels through the generation of electricity from rubbish or the replacement of brick with volcanic stone in the construction sector.

Tequila, in the Mexican state of Jalisco, features free internet in its historic centre, an app with information on local products and services, and a data system that alerts travellers on traffic and commercial activities in real time.

Gothenburg, Sweden, has taken steps to protect the well-being of future generations. It has released a smart map that encourages citizen participation in the city's trading, sharing, and renting. It also contains a 3D model for public consultations, predicting the influence of future development, and making

better judgements. However, 60% of its district heating is based on waste or recycled heat, making it one of the most environmentally friendly European capitals.

In terms of accessibility, Malaga is the most accessible city in Spain. It has installed LED street lighting and built many kilometres of bike lanes, as well as multiple rental stations. It has also installed smart irrigation systems in parks and gardens to save water, as well as a plan to reduce air pollution, pollen levels, and noise.

Ljubljana, Slovenia's capital, has prioritised sustainability, and 20% of its territory is made up of protected natural areas, with a concentration on transforming degraded sites into public spaces. It has also encouraged the purchasing of local products in hotels and restaurants, as well as the development of a tourist website with a wide range of material and apps centred on responsible tourism.

Helsinki, Finland's capital, has created a highly praised intelligent public transit system. Driverless buses are being tried, and a "Uber boat" system is being developed. Furthermore, multilingual personnel can be seen stationed around the city's key attractions, assisting visitors. It has also prioritised electric transport and plans to achieve carbon neutrality by 2035.

Copenhagen, Denmark's capital, has achieved significant advances in digitization. It has established a visitor service that allows visitors to see everything the city has to offer via moving billboards, robotics, or virtual reality.

Singapore is yet another example of digitization in action, as it has developed solutions that promote the creation of innovative communities. Tourists can use applications to learn about crime rates in specific areas and receive notifications about missing people, emergency services, and other information depending on their geolocation.

6. Smart Tourism Applications

Smart tourism is critical to the development of smart cities since tourism activities can result in a considerable increase in people and cars. This has an impact on traffic, either in terms of congestion or the difficulty in locating parking. This is why tourism and cities must collaborate to solve these issues and deliver a better experience for visitors and locals.

Dubai is another city that sought to develop a better model for its residents while also providing a unique experience for its visitors. As a result, it commissioned us to create a project aimed at creating a completely novel digital experience for the city.

7. Smart Tourism: Use of Groundbreaking Technologies

- a. Voice control and voice search via AI assistants have emerged as critical features for locating and buying tickets, as well as offering an effective customer experience. Furthermore, in addition to assisting with booking and related elements, voice operated devices assist travellers in adjusting heating, lighting, and acquiring tourist information without the need to ask any member of the hotel staff.
- b. Robotics technology is one of the most fascinating technical forms for greeting guests in hotels, pre-screening them, providing information, and assisting with luggage management and cleaning. Furthermore, culinary services and meal preparation are frequently performed by robots. All of these factors contribute to a reduction in human contact during the post-COVID phase.
- c. Contactless payment not only allows for faster payment but also improves customer experience by eliminating the need for customers to carry currency all of the time.
- d. With virtual reality and augmented reality, tourists can take virtual tours or participate in augmenting a person's real surroundings. As a result, these unique solutions are offering optimal support to travellers who are hesitant to visit during this period via popular web browsers.
- e. In addition, one of the most creative smart tourist technologies involves cyber security measures for providing more effective client services. In this aspect, AI chat bots respond to client inquiries 24 hours a day, seven days a week.
- f. Another important feature is recognition technology, which supports facial recognition, fingerprint recognition, retina scanning, and associated biometric identifiers [9]. In accordance with this, contactless check-ins and check-outs via recognition technology have been offering constant assistance to the smart tourism industry in capturing the attention of tourists all over the world and therefore strengthening their competitive advantage.

8. Smart Tourism: Adverse Impacts and Risk Perceptions

Smart tourism has captured the attention of travellers all around the world, and the use and deployment of new technologies has made travel more delightful. In this context, privacy issues raised by visitors as a result of large data made available to service providers and destinations have emerged as a challenge and a key risk factor for smart tourism [10]. In the modern smart tourist features, mobile technology and information technology employed by service providers and visitors depending on their perceived preference and tourist location have been utilised effectively. However, as personal information about tourists becomes available to numerous stakeholders, it has emerged as a key source of concern for consumers' privacy and security. Accordingly, travellers' perceived privacy risk when utilising these smart technologies, as well as privacy violation concerns, are emerging as potential risk factors for tourists.

With changing consumer behaviour and a dramatic movement towards the smart tourism idea, several novel technologies have evolved to assist tourists while they travel.

Conclusion

The paper explores exhaustively the concept of smart tourism and its related issues. The idea of smart tourism originates from the concept of smart city. The study reveals that smart tourism is purely technology based tourism which facilitates tourists by all means. Smart tourism depends upon the development of smart cities, artificial intelligence, 5G network, innovative technologies and some applications. There are some adverse impacts and risk perceptions of smart tourism. Apart from having many benefits, the development of smart tourism also has many challenges. For instance, it requires a lot of money, threatens environmental sustainability, and reduces the need for human resources. These challenges must be considered by stakeholders so that the development of smart tourism can run smoothly and be accepted by the community.

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