Chapter 6
Cross Domain Big Data Analytics in Smart Tourism: An Australian Perspective

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ABSTRACT

Data Analytics and Smart (AI)-enabled tourism applications refer to the digital tools and software used in the tourism sector that use AI technology to improve and customize with Big Data. This chapter focuses on the increasing significance of artificial intelligence (AI) in the travel and tourism sector, where technological advancements are changing how people interact with travel-related services. Big Data remains crucial in many industries, but it may be used in tourism in ways that go beyond traditional methods. This chapter looks at how data analytics and AI help create immersive experiences for travelers by offering them smart and customized solutions. Virtual travel agents, smart itinerary planners, augmented reality navigation, and other cutting-edge AI-powered services that accommodate personal tastes and requirements are all included in this investigation.

OVERVIEW

Data Analytics and Smart (AI)-enabled tourism applications refer to the digital tools and software used in the tourism sector that use AI technology to improve and customize with Big Data. This chapter focuses on the increasing significance of artificial intelligence (AI) in the travel and tourism sector, where technological advancements are changing how people interact with travel-related services. Big Data remains crucial in many industries, but it may be used in tourism in ways that go beyond traditional methods. This chapter looks at how data analytics and AI help create immersive experiences for trav-

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elers by offering them smart and customized solutions. Virtual travel agents, smart itinerary planners, augmented reality navigation, and other cutting-edge AI-powered services that accommodate personal tastes and requirements are all included in this investigation.

The study recognizes the changing expectations of contemporary tourists as well as the dynamic environment of AI-enabled tourism apps. It highlights the potential for improved user experiences as well as better travel planning while addressing the opportunities and challenges brought about by the incorporation of artificial intelligence in the tourism sector. The chapter also addresses how technology may be used to create immersive experiences, illuminating the ways in which artificial intelligence (AI) might help tourists form stronger bonds with their vacation destinations. In the framework of immersive travel experiences, it investigates how AI affects decision-making procedures, the personalization of travel suggestions, and user satisfaction in general.

Comprehensive market research and technological advancements can help in understanding the need for AI enabled tourism applications and immersive engagement. An upcoming aspect of AI is that it will place a greater emphasis on hyper-personalization, adjusting experiences and travel suggestions in real-time to suit personal tastes. Additionally, AI will be very important in advancing eco-friendly travel strategies. Future applications might offer carbon footprint tracking, recommendations for eco-friendly travel, and information on sustainable lodging and activities.

The advantage of AI in Tourism can be segmented into two broad categories. AI assist for Travelers and Tourists - Individual, Couple and Group Travellers. AI analytics and advancement for Tourism Services providers such as Airline, travel agent and hotels.

NEED FOR STUDY

The purpose of the study is to examine how data analytics and technologies with artificial intelligence could revolutionize the travel and tourism sector. The main goal is to comprehend how new technologies may completely transform the traveler experience, from booking a trip to interacting with the destination. The study aims to discover new ways in which intelligent algorithms and data-driven knowledge might improve personalization by exploring the incorporation of artificial intelligence (AI) in tourism applications. This will enable the provision of personalized suggestions, smooth navigation, and real-time help to tourists. At the same time, the research on immersive engagement seeks to evaluate how virtual and augmented reality affect visitor connections, cultural exploration, and tourist experiences. It is important to analyze which factors influence customer engagement (Mónica Montes Mendes Rocha and Ferreira, 2022).

Introduction to Data Analytics and AI Enabled Smart Tourism Applications

Data has become the crux of any industry, as the right filtering of the data can be used in multiple ways to predict demand, understand patterns and behavior, analyze variances, and take corrective action (Adnan et al., 2024). The travel and tourism industry, being a service-oriented industry, has a highly unstable demand due to various factors such as changing behavior patterns, seasonality, currency volatility, government rules and regulations, visa restrictions, etc. (Akbar et al., 2024). With the help of AI-enabled smart technologies, the raw and unstructured data can be filtered, which could be further used to analyze the patterns of tourist behavior and develop strategies and plans to fit the dynamic tourism