# Chapter 6 Big Data, Artificial Intelligence, and Their Implications in the Tourism Industry

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## ABSTRACT

Tourism businesses use AI and big data to connect guests creatively and meet their expectations with personalized service. Big data enables tourism professionals to learn more about their customers, and the more they know, the better experience they can offer to customers. As it provides real value, AI has already become an integral part of operations, and this trend will continue. Tourism businesses use AI tools to reduce operating costs and maintenance bills as in many other sectors. AI-oriented marketing has already been widely used in the hospitality industry. Moreover, as long as technology evolves and becomes more complex, tourism professionals will find more ways and methods to implement big data and AI to satisfy customers, and AI will continue to transform the tourism industry. Properties, advantages, and problems of artificial intelligence and big data are discussed in this chapter, and some examples are given from the perspective of the tourism industry.

### INTRODUCTION

Big data is defined as large amount of data sets that cannot be analyzed and managed with traditional data processing tools (Xu et al., 2019). It is briefly described as 5V: Volume, Velocity, Variety, Verification and Value (Atalay and Çelik, 2017). Big data is based on the society's ability to utilize knowledge in new ways to produce useful insights or value-creating goods and services (Schönberger and Cukier,

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2013: 11). Artificial intelligence (AI) is an area of computer science focusing on the creation of intelligent machines that work and react as humans do. Artificial intelligence is the simulation of human intelligence processing through machines, especially computer systems (Şener, 2019). These processes include learning (the acquisition of information and rules, and use of information), reasoning (use of rules to achieve approximate or conclusive results), and self-correction. Specific AI applications include expert systems, speech recognition and machine vision.

Tourism businesses use AI and big data to connect guests creatively and meet their expectations with personalized service. Big data enables tourism professionals to learn more about their customers. And the more they know the better experience they can offer to customers. As it provides real value, AI has already become an integral part of operations, and this trend will continue in the future. Tourism businesses use AI tools to reduce operating costs and maintenance bills as in many other sectors. AI-oriented marketing has already been widely used in the hospitality industry. Moreover, as long as technology evolves and becomes more complex, tourism experts will find more ways and methods to implement big data and AI to satisfy customers, and AI will continue to transform the tourism industry.

The use of artificial intelligence and big data applications are discussed in this chapter. Properties, advantages and problems of artificial intelligence and big data are discussed, and some examples are given from the perspective of tourism industry.

## BACKGROUND

## **Big Data**

Big data is defined as large amount of data sets that cannot be analyzed and managed with traditional data processing tools (Xu et al., 2019). It is briefly described as 5V: Volume, Velocity, Variety, Verification and Value (Atalay and Çelik, 2017). Gartner's 3V definition which is used to describe big data in many sources is as follows: It has large volume, velocity and / or large variety. They are information assets that require new forms of information processing that will enhance our decision-making capabilities and improve insight and process optimization (Çakırel, 2016). Big data is based on society's ability to utilize knowledge in new ways to produce useful insights or value-creating goods and services (Schönberger and Cukier, 2013: 11).

Big data collected from; social media shares, photos, blogs, video, text and recorded files, such as high volume and variety of data that can be processed and defined meaningful (Kudyba, 2014).

Monino and Sedkaoui (2016) defined big data as the term used when the volume of data used for the organization reaches a critical level, and new technological storage, processing and usage methods and approaches are required for it.

Big data is defined as large amount of information that cannot be processed by traditional methods, and comes from various sources such as website server records, internet logs, and cell phone communication records in another definition (Snijders et al., 2012: 1-5).

Big data can be defined as data that cannot be easily processed by traditional tools (Ward and Barker, 2013). Dülger states that big data (2015); is the situation in which all kinds of corporate data are digitally coded by human beings and machines, and personal data that emerge through internet and social media shares are converted into meaningful and processible format.

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