

# Chapter 7

## Understanding Big Data and Techniques in Cultural Tourism

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### ABSTRACT

*Big data enriches the experiences of cultural tourism visitors as well as being used in the management, presentation, and protection of cultural heritage. Technological innovations and the production of more data every day have increased the importance of data and information in competition in the tourism industry. For this, since it is seen that it is important to examine issues such as big data and analytics in cultural tourism, this book chapter presents the studies in the related research area in detail. As a result of the systematic literature review, data types that can be the basis for the formation of big data in cultural tourism and technologies that can support are specified. In addition, researches on cultural heritage and cultural tourism were examined, and theoretical and practical suggestions were presented.*

### INTRODUCTION

Big data provides serious benefits in all industries, but due to its information-intensive structure, having data, information, and knowledge about tourists in the tourism industry is the basis of competitive advantage. Emerging technologies led to an exponential increase in both user-generated and self-produced data in cultural tourism. The main reasons for this are the mobility of tourists and intangible and tangible assets of cultures. Tourism has arguably the biggest relationship with technology, and technological innovations add value to tourist services. Using these technologies, tourists can virtually experience and learn about the cultural assets of the destination before and during their travel. After traveling, tourists can share on the internet and through social media their media records of cultural assets and experiences which can be enriched and differentiated during the travel. Therefore, digitalization in cultural tourism has many important consequences for management and marketing fields. The tourists not only enter into cultural interaction with the local people during their travels but also learn about the cultural information about the region to be visited virtually before the travel (M. T. Cuomo et al., 2021). To pres-

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ent cultural elements in a virtual environment, technologies such as augmented reality (AR) and virtual reality (VR), holograms, and digital twins are used in cultural sites to make them attractive for tourists (Frey & Briviba, 2021). In addition, new technologies and practices help preserve cultural heritage by strengthening communication with tourists while contributing to content creation (Richards, 2018) by improving visitors' experiences and interactions with history (Bec et al., 2019).

Discussions on digitalization in tourism have shown that big data presents challenges and opportunities for destinations to be competitive. Especially, with the development of mobile technologies, social media, content addition, and data obtained through sensors offer opportunities for businesses to create value (Del Vecchio et al., 2018b). Digitalization in the tourism sector allows businesses to get to know their customers better and to present their products by co-creating. One of the important factors that guide the marketing strategies that enable co-design and co-creation in the tourism experience has been the big social data approach. The industrial achievements and case studies presented in the literature show the importance of it in the design of the touristic experience (M. T. Cuomo et al., 2021). The integration of data collection and definition into various applications enable the analysis of data obtained from media such as social networks. These data not only include a wide variety of information such as feelings, opinions, preferences, and profiles of tourists but also allow analysts to reveal different relations by analyzing them. On the other hand, it enables them to strengthen decision-making processes for smart tourism destinations and businesses, develop new products, produce innovative solutions and enrich the touristic experience (Del Vecchio et al., 2018b). Previous big data studies have been conducted for the prediction of tourist arrivals (Liu et al., 2018), the planning of cultural tourism (M. T. Cuomo et al., 2021; Hu et al., 2021), the creation of a cultural tourism platform (Yin & Li, 2021), network analysis (X. Li & Law, 2020), the discovery of tourist behaviors (Ma et al., 2020), and tourist profiles (Centobelli & Ndou, 2019).

In addition, preserving cultural heritage and transferring it to future generations is possible by virtualizing it through applications like image storage, virtual recording, virtual simulations, 3D printing, etc. (J. Li, 2021). So much so that, thanks to the digital tour guidance platforms created on cultural tourism, students learn about the cultural characteristics and environment of any destination through virtual media (Chiao et al., 2018). In summary, technology radically changes all life and its effects can also be seen on cultural tourism. Recent studies have revealed the importance of data production and analysis in cultural tourism. In this respect, it is necessary to use effectively the big data resources created by tourists or consisted of intangible/tangible cultural heritage elements in order to ensure that cultural assets can be managed, promoted and protected within the tourism industry. Using daily technologies produce continuously more data which are stored through various programs. In addition to organizing and managing such large databases, industrial professionals should know about the advanced analysis techniques for revealing unseen relationships. In this context, this book chapter aimed to reveal out data types of big data technologies and their utilization areas in the context of cultural tourism. Studies on various methods and technologies used to present the virtual world created by intangible and tangible cultural assets and industrial applications were discussed and sectoral solutions were given with examples.

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