

Chapter 22

Integrating Big Data to Smart Destination Heritage Management

Kubra Ozer

Istanbul University, Turkey

Mehmet Altug Sahin

 <https://orcid.org/0000-0003-1048-1963>

Istanbul University, Turkey

Gurel Cetin

Istanbul University, Turkey

ABSTRACT

New technological requirements and needs of today's world are forcing cities to transform into smart cities and smart destinations in tourism cases. Smart destinations are focused on enhancing the tourist experience while also supporting the decision-making process, sustaining effective usage of resources, and maintaining sustainability. Big data has started to act as a reliable resource that assists these processes and offers alternative solution methods. Improvements in the usage of big data within the framework of smart destination management systems will also provide new insights and understandings about heritage sites and their management. Istanbul and the Sultanahmet region, which were included in the UNESCO World Heritage List, form the main domain of this chapter. This research aims to reveal any significant differences between Istanbul Wi-Fi data, Sultanahmet Wi-Fi data, and Istanbul Arrivals data. Kruskal-Wallis Test was conducted for comparing these data sets for 28 countries, and recommendations are presented.

INTRODUCTION

Cultural heritage plays a crucial role in defining the national identity, sustainable development, and compatibility of creative industries (Borissova, 2018). As the cultural heritage gives an identity to a

DOI: 10.4018/978-1-7998-8528-3.ch022

region, it also brings values that will guide lives in the changing world. Cultural heritage has also been regarded as one of the main motivations of tourism. According to the UNESCO definition, cultural heritage is classified under three main headings (UNWTO, 2016):

- Tangible cultural heritage: movable cultural heritage (paintings, sculptures, coins, manuscripts), immovable cultural heritage (monuments, archaeological sites, and so on), underwater cultural heritage (shipwrecks, underwater ruins, and cities),
- Intangible cultural heritage: oral traditions, performing arts, rituals,
- Natural heritage: natural sites with cultural aspects such as cultural landscapes, physical, biological, or geological formations.

According to the UNWTO, “Tourism and Cultural Synergies” report, it is estimated that cultural tourism accounts for approximately 40% of foreign tourists (UNWTO, 2016). . Heritage tourists travel to visit historic sites, monuments, landmarks, museums, art galleries, theatres, festivals, concerts, performances (McNulty & Koff, 2014);

Cultural heritage is expected to cultivate urban innovation, liveability, and socio-economic prosperity, which form the basis of smart city approaches. At the same time, smart cities tend to move toward more “trendy” trends in urban development such as liveability, inclusion, accessibility, and openness, and cultural heritage is expected to contribute to these goals (Angelidou, 2016).

“Smart” has been widely accepted and used as a term to describe technological, economic, and social developments supported by technologies (big data, radio frequency identification, internet of things, near field communication, etc.) (Gretzel, Sigala et al., 2015). Smart cities are a model that drives cities towards technology and innovation. Cities aim to increase welfare, efficiency, and competitiveness by becoming smart. While potential applications and approaches exist, cultural heritage offers numerous integration opportunities in the smart city context. At the intersection of cultural heritage and smart cities, it is necessary to bring the two disciplines together in order to enrich the existing knowledge base. The distinguishing feature of smart cities is their main role as a means of facilitating, organizing, and enabling people’s access to information with the increasing use of technology (Angelidou, 2016).

The International Organization for Standardization (ISO) 37120 (2014) defines the smart city as a new model that uses next-generation communication technologies such as the Internet of Things (IoT), cloud computing, big data, and integrated geographic information systems, which will facilitate the planning, management, construction and smart services of the city. Smart city transformation requires an integrated framework based on the city’s existing social, economic, organizational, and competitive assets. The development and operation of a strategic framework help to deliver efficient urban planning and scarce resources. Taken from a tourist perspective, the smart city means a smart destination.

Smart destinations focus on improving an understanding of how emerging technologies can be better used to create value for tourism stakeholders and tourists. Bringing smart applications to life in a city fronted by tourist activities will help position the city as a smart destination. Improving the tourism experience will also affect the image and identity of the destination, enhancing the competitive advantage in the market. Simultaneously, smart applications that will facilitate the availability of tourist services offered in the destination and offer a high-quality experience to tourists will positively impact the image and economy of the destination.

Smart tourism involves multiple components and layers such as smart experience, smart business ecosystem, and smart destination. These components are supported by layers that collect, exchange, and

17 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/integrating-big-data-to-smart-destination-heritage-management/295515

Related Content

Quality of Service in Mobile Ad Hoc Networks

Winston K.G. Seah and Hwee-Xian Tan (2008). *Encyclopedia of Internet Technologies and Applications* (pp. 441-448).

www.irma-international.org/chapter/quality-service-mobile-hoc-networks/16887

An Approach based on Social Bees for an Intrusion Detection System by Scenario

Ahmed Chaouki Lokbani, Ahmed Lehireche, Reda Mohamed Hamou and Mohamed Amine Boudia (2020). *Securing the Internet of Things: Concepts, Methodologies, Tools, and Applications* (pp. 914-938).

www.irma-international.org/chapter/an-approach-based-on-social-bees-for-an-intrusion-detection-system-by-scenario/234974

Crop Health Monitoring Using IoT-Enabled Precision Agriculture

Uferah Shafi, Rafia Mumtaz, Syed Ali Hassan, Syed Ali Raza Zaidi, Awais Akhtar and Muhammad Moez Malik (2020). *IoT Architectures, Models, and Platforms for Smart City Applications* (pp. 134-154).

www.irma-international.org/chapter/crop-health-monitoring-using-iot-enabled-precision-agriculture/243913

Network-Layer Mobility Protocols for IPv6-Based Networks

K. Daniel Wong and Ashutosh Dutta (2008). *Encyclopedia of Internet Technologies and Applications* (pp. 360-366).

www.irma-international.org/chapter/network-layer-mobility-protocols-ipv6/16876

Security Awareness in the Internet of Everything

Viacheslav Izosimov and Martin Törngren (2019). *Harnessing the Internet of Everything (IoE) for Accelerated Innovation Opportunities* (pp. 272-301).

www.irma-international.org/chapter/security-awareness-in-the-internet-of-everything/221291