

## Chapter 5

# The Internet of Things and Cultural Heritage

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### ABSTRACT

*The last point reached in today's technology revolutions is the fourth level industrial revolution. This revolution is called Industry 4.0. Many new generation technologies such as the internet of things, artificial intelligence, internet services, augmented reality, smart objects, and business sector branches have been included in human life. Industry 4.0 technologies have an effective use in many areas of our lives. The tourism sector, which is in constant interaction with people, is also affected by these technological developments. For this reason, businesses should perceive the internet of things well and need to introduce various applications to their businesses to provide the best service to their potential customers. In this chapter, after giving information about the internet of things, cultural heritage, digital transformation practices in the tourism sector, and smart tourists are discussed.*

### INTRODUCTION

Human life is in a process of constant change and development in direct proportion to the time. Over time, some changes have a facilitating effect on human life. These changes are expressed as industrialization and are divided into revolutions. Industrialization is defined as “the process of replacing human power with machines” (Outman & Outman, 2003: 15). Today, as a result of the integration of the industrialization process with information and communication technologies, the Industry 4.0 revolution is mentioned. The Industry 4.0 revolution is also expressed as the ‘internet of things’ (IoT) (Karaman & Karaman, 2019). With Industry 4.0, the concept of 4.0 and smart concepts have emerged with the effect of digitalization in various sectors.

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The concept of IoT is defined as the transfer of data produced from any object to other systems with the help of a network (Rouse, 2016). IoT has caused a cultural change with the effect of connecting many machines, sensors, devices, activators, and other objects with each other and strengthening communication. A lot of data can be provided in short time via objects (Tosun & Saglık, 2019). With this change, many concepts defined as ‘smart’ have entered the literature and various sectors. In the tourism sector, which is in constant interaction with human life, concepts such as tourism 4.0, smart tourism, smart tourism applications, and the use of smart objects have emerged through the effects of digitalization and objects. Along with these concepts, some applications in the tourism sector have started to be used actively in destinations and businesses thanks to IoT.

While people benefit from the effect of digitalization and the ease of the internet of things, they also try to preserve the existing cultural textures of nations. Each nation has its own tangible and intangible cultural heritage items. These elements are protected by various institutions and organizations and their sustainability is supported. Nowadays, people in the globalizing world tend to experience local and locality rather than cosmopolitanism while participating in tourism activities. With the active use of the Internet in human life, tourists can get information about the destination and the business they will go to before participating in tourism activities and experience various applications during their visit. In addition, it contributes to the marketing activities of the enterprises by recommending destinations and businesses after the trip. Furthermore, people have the chance to experience many places with their sensorial properties (visual, auditory, tactile, etc.) through the internet of things, virtual reality, and augmented reality applications. While these practices enable tourists to have new experiences, they also have a positive effect on the marketing of businesses. In this part of the book, the concepts of the internet of things and cultural heritage are examined in detail in sub-titles. In addition, current practices used in the field of cultural heritage at the international, destination, and business levels are included through the Internet of Things. The aforementioned titles have been examined for information purposes and represent the current situation.

## **BACKGROUND**

### **Internet of Things (IoT)**

The Internet of Things is one of the known terminologies related to the development of today’s technology and is technology-focused on providing solutions to the problems encountered in daily life (Kılıc, 2019). The concept of the Internet of Things is a phenomenon that rapidly changes and develops in information and communication technologies. Looking at the internet of things in the historical process, it started with the prediction by the German computer science pioneer Steinbuch in 1966 that “in a few decades, computers will be intertwined with almost every industrial product” (Elazhary, 2019: 128). In 1982, the Coke machine was invented at Carnegie Mellon University that could report the temperature and the inventory in it. In the literature, it is thought that this machine is the first device invented with the internet. The term IoT, which expresses the internet of things, was used in 1985 by Lewis, one of the speakers of the United States Federal Communications Commission (FCC). Weiser, a scientist in the USA in 1991, used the term ‘ubiquitous computing anytime, anywhere’, published a seminal article on computing and the concept of IoT was produced in the academy (Kılıc, 2019; Elazhary, 2019).

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