

Chapter 73

Technological Developments: Industry 4.0 and Its Effect on the Tourism Sector

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ABSTRACT

Technological developments in recent years have been affecting the lives of people and societies more rapidly than in the past. Developments in the field of communication, robotics, transportation, etc. are called the 4th Industrial Revolution or Industry 4.0 in the industrial sector. Technological developments have created great changes in the services and industrial sectors. Industry 4.0 has also led to changes in the transformation of the tourism sector and is likely to occur in future processes. This chapter examines the impact of Industry 4.0 on the tourism sector.

INTRODUCTION

Technological developments have been increasing in recent years. At the end of the 18th century, the advancements in technology have been advancing rapidly since the 1st Industrial Revolution, which started with the use of steam engines. Developments in the field of communication and progress in informatics have affected the change in all fields.

The first three of the previous industrial revolutions are called mechanization, use of high electrical energy and automation and electronics, respectively (Lasi et al., 2014). Today, economies are turning to the fourth industrial revolution, defined by the use of cyber systems, smart factories and innovations in the service sector (Shamim et al., 2016, Lee et al., 2014). Industry 4.0 can also be defined as a subcomponent of digital transformation in existing businesses and processes (Porter and Heppelmann, 2014).

Depending on the changes in technology and digitalization; both the product and the production methods vary. This change is called industry 4.0. The 4th industrial revolution, called as Industry 4.0,

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is the process in which the use of computers and automation in the industry. With Industry 4.0, use of automatic machine also called robots has been at the industry.

Pecený et al. (2019) discussed Tourism 4.0, a new tourism paradigm that emerged to reveal the potential for innovation in the entire tourism sector. In the study, it is assumed that technologies that provide important opportunities from Industry 4.0 such as Internet of Things, Big Data, Chained Disabilities, Artificial Intelligence, Virtual Reality and Augmented Reality can be applied to tourism sector. It is believed that by creating a common ecosystem involving local residents, local authority, tourists, service providers and government, an enriched tourism experience can be created in both the physical and digital worlds.

In their study, Shamim et al (2017) examined Industry 4.0 issues in the service sector and the situations in the hospitality industry. The challenges of Industry 4.0 require continuous innovation and learning, depending on people and the capabilities of the business. Appropriate management approaches play a vital role in the development of dynamic capabilities and in an effective learning and innovation environment. In the study, proposes a framework of management practices that can support innovation and the learning environment in an organization was investigated.

BACKGROUND

Industry 4.0

Depending on the technological developments, the current approaches in the tourism sector needs to change. In this issue, definitions such as Industry 4.0 or Tourism 4.0 have been made. The aim of Industry 4.0 or Tourism 4.0 in tourism is to reduce the negative effects of tourism, to see the effects of the use of technology in the tourism sector and to develop cooperation models in partners. Some researchers also define Tourism 4.0 or Industry 4.0 in the tourism industry as smart or intelligent tourism, and this is being discussed by many researchers. (Buhalis & Amaranggana, 2013, Gretzel et al., 2015a, Hunter et al., 2015, Gretzel et al., 2015b, Geissbauer et al., 2014, Schwab, 2016, Verevka, 2018, Goncharova and Bezdenezhnykh, 2018, Lebedev et al., 2018). Concepts and tools provided by intelligent tourism is a phenomenon that defines, extends and integrates Information and Communication Technology (ICT) into the tourism experience.

Factors that led to the fourth industrial revolution called Industry 4.0; the spread of robots, the Internet of Things, artificial intelligence, sensors, cognitive technologies, nanotechnology, services of the Internet, quantum informatics, wearable technologies, augmented reality, intelligent signalling, intelligent robots, big data, new generation technologies such as 3D and smart networks. Industry 4.0 technologies have started to change business environments and lifestyles by rapidly using them in business life, communication and education. Since the tourism industry is a dynamic industry that is rapidly adapting to innovations and technologies, Industry 4.0 technologies have quickly found application in the tourism industry. With the use of Industry 4.0 technologies for tourism purposes, 'smart tourism' concepts emerged. Topsakal et al. (2018) discussed why some people, and therefore tourists, have previously used industrial revolutions than other people or tourists, and what the causes are for it.

Mil and Dirican (2018) have focused on the effects of technological developments on the tourism sector and presented a large literature review on the subject. Icten and Bal (2017) examined the virtual and augmented reality and their application examples in fields such as education, art, traffic, engineer-

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