Chapter 4
Intelligent Technology and Automation in Hospitality:
The Case of Four- and Five-Star Units Operating in Portugal

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ABSTRACT

Based on the growing evolution of intelligent technology and automation in the provision of services, this chapter analyzes its incorporation into the 4- and 5-star national hotels and its consequent impact on decision and consumer choice. In this sense, the authors proceeded to characterize the technologies with greater appetence concerning the reality of the hotel industry. Furthermore, they investigated the appreciation made by the guests, researched trends, advantages, inconveniences, changes in behavior and procedures, given the COVID-19 pandemic.

INTRODUCTION

Creating value in hotels implies anticipating guests' needs, meeting them and assertively taking advantage of the potential of new technologies (Ivanovv et al., 2017). In this sense, the new technological wave based on the potential of the fifth generation (5G) and the analysis of emotional data raises the possibilities of technology to a different level, but also generates new challenges on the creation of experiences, the use and privacy of data, which the hotel industry cannot ignore (Zsarnoczky, 2017).

Innovating, regardless of the scope of innovation, creates differences between those who innovate and those who do not, and this difference is only profitable if the market values it. This aspect is critical considering that the Internet of Everything (IoE) will continue to reinvent industries, but if some technologies in terms of acceptance by guests are peaceful and even a requirement, others such as robots, artificial intelligence, biometrics, or autonomous vehicles, are still controversial (Lukanova & Galina, 2019). Many of the fears and criticisms presented result from the lack of knowledge about the possibilities of technologies, namely, about automation and artificial intelligence, and focus on replac-

ing workstations with machines or the possibility of misuse of data. Regardless of the type of fear, 5G exponentially increases the amount of data connected (Dahlman, 2018). This fifth generation of mobile network technology is presented as two hundred times faster than the fourth generation (4G), with a much shorter latency period, an extremely high-reliability rate and capacity for one million devices per square kilometer. In addition to the promise of speed, strength, reliability and intelligence, the fifth generation's most significant impact is expected to be on the devices' ubiquitous connectivity. It is essential to point out that this new generation is not just a technology that aims to improve the communication capacity of devices that make the provision of services more accessible and more interactive, as it will allow an unprecedented growth in data communication capacity, opening up the ports to hitherto unimaginable services and applications (IIA, 2019). For this revolution in the way we live, work and travel, the possibility of intelligent technology, interacting with each other, and having the ability to learn has contributed significantly. In this brave "new world," systems and devices with artificial intelligence are already able to recognize, interpret, process, simulate human emotions, perform facial or voice analysis and decode feelings (Piteira et al., 2019).

All these new smart technologies allow changing how hotel services are provided by customizing the guest experience (Bilgihan et al., 2016). Thus, given a future that has already arrived in technological terms, the hotel industry will once again have to reinvent itself (Tanti and Buhalis, 2016). In recent decades, we are talking about a sector that has suffered a series of financial crises, terrorist attacks, and natural disasters and is currently facing one of its most significant challenges – "learning" to deal with the impact of the COVID-19 pandemic (Seyitoglu and Ivanov, 2020). Because of tourism, the hotel industry is related to the movement of people and goods, and whose transport acts as a vector for the distribution of infectious agents, such as viruses and bacteria, on a regional and global scale. When an infectious agent reaches the human population in a pandemic way, its combat involves closing borders, sanitary fences, social distance, and the imposition of confinement, which affects all parts of the hospitality value chain. Therefore, knowing the relationship between pandemics and travel is essential to understand the systemic effects that this and new viruses can generate (Gössling et al., 2020; Dube et al., Chikodzi, 2020).

For Gursoy and Chi (2020), the pandemic, by creating the need to minimize contacts, came to promote digital support technology, payments for mobile equipment, touchless elevators, keyless locks, voice-controlled equipment and service robots, as well, foster the emergence of new inventions.

"In this sense, the investment in information and communication technologies is assumed as a strategic axis of intervention, aimed at enhancing, reinventing and adapting the national offer to the profile of an increasingly high-tech tourist" (Gustavo & Belo: 55).

The 4- and 5-star hotels operate in a very demanding and competitive market, in which there is a permanent need to provide a quality service with differentiation through innovation. Nevertheless, given the wide variety of technologies available on the market, it is not always easy for those who must decide which technology to incorporate, knowing which ones will be valued by guests and contribute to a practical improvement in satisfaction. The literature review shows that incorporating some technologies in the hotel industry has had great acceptance for the comfort and independence it generates for guests, but other technologies, such as artificial intelligence, automation, robotics and biometrics, are still controversial. The focus of the discussion is essentially based on the controversy of the humanization of the appearance of robots, the dehumanization of automated services, the issues of protection and destination of data collected about guests. However, other aspects also need reflection, particularly the issue of safety in the case of driverless cars or personalized services based on technologies, which

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