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ADVANCES IN GLOBAL SERVICES AND RETAIL MANAGEMENT

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## Does Coronavirus (COVID-19) Transform Travel and Tourism to Automation (Robots)?

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### Abstract

Global coronavirus is the name of consternation. It has a depraved impact on world health, the international economy, as well as the travel, tourism, and hospitality (TTH) industry. The World Health Organization (WHO) already declared an international public health emergency in the concern of cases and deaths. Tourism is a human-intensive industry, but on one side, the circumstances of the virus separate people from personal interaction, on the other side, technological development offers automatic robots to the service. So the future of the TTH might be transformed toward automation (robots). The paper aims to extend the knowledge by investigating and elaborate potential usage and effects of automatic robots in the TTH industry. The analysis can support the industry to overcome the effects of the Coronavirus (COVID-19) epidemic with the help of automation.

**Keywords:** Coronavirus (COVID-19), travel, tourism, hospitality, automation, robots

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### Introduction

In the 21st century, the world faces several coronaviruses like HCoV-229E, HCoV-NL63, HCoV-HKU1, HCoV-OC43, MERS-CoV, SARS-CoV, and SARS-CoV-2, which officially known as 2019nCoV or COVID-19. World Health Organization (WHO) declared COVID-19 as an epidemic besides, stated that from the 2009 H1N1 (swine flu) epidemic to COVID-19 total of seven contagious coronaviruses have outbreaks (Wang, Horby, Hayden, and Gao, 2020). These diseases not only impact global health and the economy but also hard hit the TTH industry. In this situation, WTTC has announced its sustenance to all tourism administrations to follow some steps like remove barriers (to improve pressure at ports and airports which ensure unnecessary barriers remove), ease fiscal policies (to decrease and eliminate travel taxes), announce incentives (to provide those companies who has impacted by the virus outbreaks), improve travel facilitation (to simplify visas requirements and improve technical support to improve processing), and support destinations (to promote resources, product development, and marketing of the destinations) (WTTC, 2020). After all, the world faces a contagious situation that has to break the records in terms of the number of cases and deaths. These viruses attract let travelers and hoteliers think differently, instead of human interaction robots may be the better choice, less human dealings less

infection (Christou, Simillidou, and Stylianou, 2020). TTH industries have been changing or modifying services according to the demand of travelers and consumers from the beginning to the present time. According to Zenker, Braun, and Gyimóthy, (2021), in the future TTH services may go to transform toward automation in the apprehension of Public Health Emergencies of International Concern. So service robots open an alternative door in front of travel and tourism (Christou, et al. 2020), like in Japan (Henna Hotel), China (Alibaba Hotel), the USA (Wynn Hotel, Aloft Hotels), and Europe (Comfort Xpress Hotel in Oslo) operating completely automated services without the encounter of any employees (Ivanov, Webster, and Berezina, 2017). Service robots offer vast chances to TTH businesses to recover their procedures. Moreover, travel specialists believe autonomous flights may bring the change, especially at first can start with cargo flight as a trial, and automatic check-in, check-out with biometric passport/ID by the control of machine learning robots in the airport, hotels (Parvez, 2020). Furthermore, conveyor belt service or service robots are now frequent in many restaurants in big cities (Lee, and Ko, 2021). That is why this paper aims to extend the knowledge by investigating and elaborate potential usage and effects of automatic robots in the TTH industry under the circumstance of coronavirus epidemic. This paper also provides possible solutions to overcome the newly emerged problems in this crisis.

## Literature Review

### *Coronavirus (COVID-19)*

Latin word corona means “crown” or “wreath”. It was copied from the Greek word “κορώνη” which means "garland, wreath". Goldsmith, Tatti, Ksiazek, Rollin, Comer, Lee, and Zaki, (2004) said, the name mentions the characteristic of this virus and its image (monumental of the crown). In the late sixties identified a new sort of infection, in general pathology, was known as common cold and breathing tract contagions, which were the first identified the coronavirus (Zhou, Zhang, Bao, Zhang, and Zhu, 2020). According to scientific research, the enveloped positive-stranded RNA virus is the base of the coronavirus family (Gorbalenya, Baker, Baric, Groot, Drosten, Gulyaeva, and Ziebuhr, 2020), and Coronaviridae can be causing disease in a human. In the late 1960s first discovered human coronavirus B814 (80 –150 nm in size) (Geller, Varbanov, and Duval, 2012), which was later named “human coronavirus OC43” which infects humans and cattle as well as “human coronavirus 229E” which infects humans and bats (Goldsmith, et al. 2004). At different times several coronaviruses have outbreaks like MERS, SARS virus, and SARS-related virus may have an eruption to distorted coronavirus which attained novel virulence influences through the mutant of coronavirus from mammals and birds to human and/or human to human interaction that may infect human’s cells (Shahrajabian, Sun, and Cheng, 2020).

### *Effects of COVID-19 on TTH*

According to the current research, tourism was hit particularly hard by COVID-19 outbreak and a major challenge in both demand and supply (Gössling, Scott, and Hall, 2020). According to IATA (2020), internationally 98% of the TTH organizations have affected by COVID-19 coronavirus and is the cause of approximately 38% fall in RPKs plus a \$252 billion tax revenue loss in 2020 (Table 1). According to UNWTO, only in 2020 TTH lost tourist arrivals 290 to 440 million, and tourism exports (receipts) - 300 to 450 US\$ bn. Besides, tourism exports misplaced is up to US\$ 2.1 trillion and approximately 75 million workers lost their jobs, and day by day this amount is increasing (Škare, Soriano, and Porada-Rochoń, 2021). This loss has not only in the travel and

tourism industry but also in other related industries include frailer economy, social and unemployment pressures.

**Table 1.** Loss of Passenger Revenue Worldwide

Market	Impact on passenger numbers	Impact on passenger revenue (Billion US\$)*
Australia, China, Japan, Malaysia, Singapore, South Korea, Thailand, Vietnam	-23%	-49.7
APAC excluding the above	-9	-7.6
Australia, France, Italy, Germany, Netherlands, Norway, Spain, Switzerland, Sweden, UK	-24	-37.3
Europe excluding the above	-9	-6.6
Bahrain, Iraq, Iran, Kuwait, Lebanon, UAE	-23	-4.0
The Middle East excluding the above	-9	-2.3
Canada, USA	-10	-21.1

Source. IATA economic, 5<sup>th</sup> March 2020

### ***Automation (Robots) in TTH***

The use of technology becomes a critical factor in many sectors. Indeed, technological advancement offers a mutual benefit for service receivers and providers to gain the business strategy in this crisis to protect the tourism industry (Lee, 2021). In the TTH sector automation is essential to recovering the task which is problematic or unbearable by employees. Automation does not mean the use of the machine in the replacement of human labor, but it is the technical use in the process of task accomplishment by human assistance (Ivanov, et al. 2017). Tourism scholars believed that automation will go beyond the tourism literature's theory and will enter the realm of current tourism practices to replaces this labor-intensive industry with an automatic advance industry (Tussyadiah, 2020). Because robots cannot effect by viruses and can perform the tasks efficiently and within a short period, what employees desire to ignore or escape. The complexity of the current situation of COVID-19 influenced automation to operate the robot broadly and intelligently for carrying out the tasks through the machine, where the program is installed, and an employee supervised the performance (Kim, Kim, Badu-Baiden, Giroux, and Choi, 2021).

Robots, artificial intelligence, and service automation (RAISA) are considering new technologies, in the hospitality business to leads the extraordinary modifications to their guests (Lukanova, and Ilieva, 2019). RAISA brought an innovative awareness in front of the travel, tourism, and hospitality businesses to advance the procedures, escalation efficiency, and ensure the constant quality level (Haynes, 2020). Automated types of machinery were commonly used in the manufacturing industry and recently, this automation becoming familiar to service industries to redesign the level of hospitality. Additionally, "automated robots in the service is the foundation of self-service technologies through which part of the process of producing and delivering the service is transferred to the customer. Self-service technologies can be defined as a service delivery method, which allows the customer to become a producer/co-producer of the service without the need for mediation of service staff" (Lukanova, et al. 2019, p-3). In the perception of the service robots provide safety, saves time, costs, and energy, besides increases the quality and organization of the operation skills (Christou, et al, 2020).

**Table 2.** Automation in the Travel and Tourism

	<b>Robots</b>	<b>Artificial intelligence</b>	<b>Service automation</b>
<b>Pre-arrival</b>		AI search platform Chatbots	Virtual reality Mobile check-in Social media
<b>Arrival</b>	Porter robots	Face recognition Machine learning Deep learning	Digital Kiosks Smartphone Room keys/non-stop check-in
<b>Stay</b>	Front desk robots Concierge robots Delivery robots Vacuum cleaning robots Room assistant robots	Interactive social hubs Chatbots	In-room smart technology
<b>Departure</b>	Porter robots	Travel assistant	Express checkout Digital Kiosks
<b>Assessment</b>		AI platform	

*Source. Lukanova and Ilieva (2019)*

### ***Robots Establishment in TTH***

Coronavirus pandemic generates the unavailability of employees; also, human contract restrictions sport out the demand for service robots (Christou, 2020; Horwitz, 2020). The strict rules of no-touch increase the interest of robots meaningfully to prevent virus transmission among people. So service robots became the alternative of delivering food and drinks in the service area like the hotel, restaurant, and hospital (Xiao, and Kumar, 2021). Those robots are disinfectant and cast UV lights all over the area to kill germs. Before the use of robots, an employee needs to wear germs protected suit from protecting themselves before they provide any kind of service, so the robots helped them and the service process can be handle safely. In Europe, Denmark established UVD robots based on UV disinfectant to market worldwide and the Chinese companies already sold 15000 service robots and expect threefold growth within 2020 (Horwitz, 2020). Currently, several studies have examined robot use within the situation of current tourism demand and the customers' observations of robots' usage in the TTH field (Christou, 2020). The answer to the research question of does coronavirus (COVID-19) transforms travel and tourism to automation (robots), remains rather mysterious.

### **Conclusion**

The coronavirus epidemic has been growing day by day; the WHO announced that after the 2<sup>nd</sup> world war now, the world is passing an appalling time. The fear of virus infection lets people stay at home, but this fear will continue in future travel establishments as well. Therefore, the travel industry is in a double sword situation. So avoid face-to-face communication, maintain social distance, and follow the safety rules are the best way to prevent virus infection, and preventive action is better than protection. At this moment, when mostly worldwide every country is suffering from medical types of equipment and basic needs, whereas industrial productions also close for an uncertain time. So different types of crises are increasing every day, even though all the industries are trying to overcome the barriers. According to the analysis of current circumstances, it is clear that now people are more careful about personal hygiene and public health issues, plus people's social distance rules brought the automation as an alternative for the tourism industry to be sustained. Robotics adoption in TTH is the demand for time, even though some restaurant chains, hotel chains, and airline companies already start working on this project. According to Gartner, yearly automation increase 57 % in software base development, and the spending amount will be



a total of \$2.4 billion by 2022 (Barker, 2018). Besides, restaurants are using the robot's waiters, robotic chains from the service station to the customer tables and robot cook also become the part of kitchen management. In the rapidly changing situation, the TTH industry needs to acclimate automation continuously with the demand of customers at that time, and to be sustained in the competitive business environment, management should think one step further with a visionary skill. Moreover, at this moment situation requires the use of robots for service (food and drinks), sanitization (kill germs, virus), and information guidance (Chatbots, robot assistants). Finally, the TTH industry should regard automation (robots) as a prime concern to overcome after the coronavirus situation to re-establish the image of the tourism industry.

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