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HOW TO APPLY DIGITIZATION IN THE TOURISM AND HOSPITALITY?[2]

Information and communication technologies have moved us from an industrialized society to an information society, driven and regulated by the information content. The content of the website, the automation and robotisation as technologies used by hospitality organizations have become necessary conditions, providing a warranty that the company will be recognized on one hand. Tourism and hospitality are industries that have been most significantly affected by the information age in which we live. Due to digitization, the tourist has the opportunity to obtain preliminary information about the given destination, to take a virtual tour and to create expectations about the future destination he/she plans to visit. The digital technologies also support and help the tourist in the preplanning, planning stage as well during the trip and after it. In other words, the digitalization of tourism facilitates and contributes to the quality service of tourists. The current paper addresses the essence of digitalization through application of the artificial intelligence in the example of tourism and hospitality. What is more, it discusses how the digitalization can impact on the tourism industry. Best practices for the application of digitization in the sphere of hospitality and tourism have been also presented in the current paper.
Keywords: digitization; robots; artificial intelligence; chatbots; travel blogs; AI; hospitality robots; emotional intelligence; digital maturity
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Introduction

Tourism and hospitality are industries that have been significantly affected by the information age in which we live. Due to digitization, the tourist has the opportunity to obtain preliminary information about the given destination, to take a virtual tour and to create expectations about the future destination he/she plans to visit. The digital technologies also support and help the tourist in the preplanning, planning stage as well during the trip and after it. In other words, the digitalization of tourism facilitates and contributes to the quality service of tourists.

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Digitization of tourism promotes self-service for consumers. In this sense, the successful application and use of IT depends not only on the technology, but also on the way the user perceives and uses this technology (Yordanova, 2016). What is more, the level of adoption of digital technologies reflects the digital readiness of the organizations from the hospitality and tourism industry.

Main body

Digitization can be considered from several aspects. From an information point of view, it represents the process of changes and transformations that move and build on the foundation of digital technologies as within an organization. In other words, digital transformation is defined as an organization moving to big data, analytics, cloud, mobile and social media platforms. whereas organizations are constantly transforming and evolving in response to the changes in the business environment, also a process of fundamental changes in existing and creation of new business models in response to the proliferation of digital technologies such as cloud computing, mobile Internet, social media and big data.

In other words, *digital transformation represents all changes based on the digital technologies leading to unique changes in the way business operates, processes and creates value* (Via, 2019).

From a marketing point of view, digitization can be expressed by the use of new digital technologies, such as social media, mobile, analytics or embedded devices, to achieve improvements and refinement of business processes (Via, 2019).

From a managerial point of view, digitization can be considered as a transformation achieved through digital technologies in the company's business model, resulting in changed products or organizational structures or in the automation of processes. These changes can be observed in the growing demand for Internet-based media (Via, 2019).

As a term, digitization reflects the regulation on a government level, expressed in the strategy and vision for tourism development. During the COVID-19 crisis, we witnessed how some industries flourished while other businesses were faced with the question of their survival In March 2020, the whole world faced a new challenge that had surprised many businesses. A worldwide pandemic was declared and very strict regulations by the World Health Organization have been introduced all over the world. On the one hand, social contacts were prohibited, a strict regime of disinfection and social distancing was introduced. The social experiment itself turned out to be disastrous for one of the most developed industries in the world, namely tourism which together with the hotel industry, suffered the most significantly, because many excursions were cancelled, and hotels and restaurants were forced to close for a while due to the announced statistics of increasing cases of infection worldwide. The unsuspecting tourism businesses had to adapt somehow to survive the harsh measures affecting mostly this business of creating the tourist experience.

As a result, in 2020, the number of nights spent in tourist accommodation facilities in the European Union (EU) have decreased by 51% compared to 2019 year. The EU accommodation sector only has started to recover in 2021, by 28% more overnight stays

compared to 2020, reaching almost two-thirds of pre-pandemic levels in 2019 (https://ec.europa.eu/eurostat).

In 2020 year, 51 million fewer European Union residents made private trips. Comparing 2019 year to 2020 year, there was a 21% decline to 193 million in 2020. In percentage terms, as a share of the population (aged 15 or older), 52% participated in tourism in 2020, a decline from 65% in 2019).

The issue of digitization has gained significant relevance in the context of the pandemic crisis, which has proven detrimental to this specific industry. Many of the restaurants were faced with the dilemma of how to survive and position competitively in the new economic reality. Considering the strict regulations introduced all over the world, in some countries the restrictions were extremely restrictive and detrimental to entire industries, tourism and hospitality were forced to react post factum in order to survive in the first place, to be able to cover their costs. In this regard, their transition to a digital mode of doing business and the inclusion of digital models in their way of functioning were critical and very essential as the only alternatives for business activity (Bankova, 2021).

2020 was quite a dramatic year for the whole world. The widely announced COVID epidemic has been devastating for the hospitality and restaurant industries, where direct contact with guests has been prohibited for some time. After the introduction of a state of emergency in 96% of the world's countries, restrictions and bans on travel, holding organized events, including tourist trips, increased the sense of risk while traveling and a number of hotel reservations were cancelled. Despite the fact that the Ministry of Tourism of the Republic of Bulgaria announced the country "a tourist destination with a seal of safety and hygiene (safe travel seal) from the World Travel and Tourism Council, an outflow of tourists was recorded, which led to a serious stagnation in tourism as an industry and serious negative consequences for the industry (Zheleva, Mutafov, 2021).

The Safe Travels stamp itself aims to reassure and assist travelers in choosing a safe destination and accommodations worldwide that have implemented high standards of safety and hygiene by following specific safe travel protocols, providing guidance to travel providers and tourists regarding hygiene, disinfection and physical distancing.

Considering the remote access and the impossibility of physically visiting many of the tourist sites, restaurants and bars, the virtual model of activity has proven to save many of the businesses during COVID crisis.

The development of tourism and hospitality in the Republic of Bulgaria as part of the EU is carried out with the support of a number of institutions as the Ministry of Tourism, and is regulated by the tourism development strategy for the period 2018-2030.

The level of digital maturity is a term that does not only mean the degree of readiness of the organization to use digital technologies in its activity, but also strategic and operational readiness for the operationalization of processes and compliance with the requirements of the information society (Dencheva, 2004).

The digitalization process itself depends on several circumstances. On one hand, it is up to the available infrastructure of the organization enabling the self-service of the tourist, and on

the other depends on the level of the digital skills of the potential tourist himself, the user (Bankova, 2022).

On the other hand, the state as a regulatory body has played a life-saving role for organizations in the field of tourism and hospitality. It not only created the restrictions themselves, but also introduced an option for conducting sales over the Internet, for online orders and for on-site delivery. Thus, many of the restaurants have been able to survive by reporting increased sales volume through their virtual platforms.

The digitization of tourism organizations took place abruptly, without a smooth transition and gradual introduction of innovations. The purpose of the present paper is to present on the one hand the phenomenon of digitization, and on the other to consider its impact on business, in particular hospitality and tourism.

Before we proceed to consider artificial intelligence we need to clarify what intelligence is as a concept. By intelligence is meant the ability of a person to think in a reasonable and logical way. There are many tools for measuring the level of general intelligence, the most popular of which is the so-called IQ. Approximately 80% coefficient of intelligence is inherited from parents, and the rest is formed in the first 2 years from the life of the person. There are several types of intelligence: emotional, spiritual and intellectual.

One of the main criteria for measuring the level of general intelligence is through IQ which measures an individual's ability to learn a language, for example, through verbal intelligence, logical and abstract thinking. In their study, Mura et al. (2019), found a positive relationship between intellectual intelligence and the ability level for understanding. In other words, if the person has a high intellectual intelligence possessed by the individual, it will lead to a high level of understanding and awareness. And vice versa, the less intelligence people have, their ability to understand will be low.

In many ways, robots have an intellectual intelligence. They are currently being used in the field of the hospitality industry in positions where they replace employees, performing routine and simple operations such as meeting guests, transportation and food preparation in the restaurant (Yordanova, 2023). As digital machines, robots are fully equipped with a different operating system (digital vs biological) and with correspondingly different cognitive qualities and abilities than biological beings such as humans and other animals (Muhammad, et al., 2019).

Digitization as it became clear has different forms of application, some of which are more popular and others not so much. With the development of the last wave of the information society, we are witnessing the entry of artificial intelligence into all spheres of our life and especially in the field of tourism and hospitality. Many occupations will surely be replaced by robots. We are about to look at what artificial intelligence is and how it can affect the tourism and hospitality industry. A huge challenge for these two sectors was the crisis itself during the pandemic. These sectors were threatened by the severe restrictive regimes. In this sense, their survival and successful functioning were in an extremely critical condition that is why many micro and small family hotels and restaurants failed to adapt and survive. Therefore, how artificial intelligence and robots could improve the financial health of tourism and hospitality organizations, their efficiency and overall adaptation to changing

environments and how they transform and expand their services to meet the needs and expectations of their customers (Citak et al. 2021).

As a result, the hospitality and tourism industry is using cutting-edge technologies such as artificial intelligence and robotics (AIR) to deliver a different experience to its potential customers, tourists and guests. These technological advances have been transformed into intelligent tools for providing customer service and they are used to improve customer experience (Goel, et al., 2022).

Furthermore, the rapid advancement of AI in hospitality management also has the potential to increase business performance from the collection of user data to their subsequent analysis. In this regard, the artificial intelligence offers a lot of opportunities to optimize processes in the field of tourism and hospitality by:

- *Providing Personalized customer service;*

- *Reducing the costs for staff;*

- *Optimizing the organizational structure.*

In this regard, using natural language processing techniques and the ability to learn quickly, AI solutions can "speak" in human language, and artificial intelligence and robots can be applied in the hospitality industry in the following activities: front office, reservations rooms, reservations, checking out, answering customer requests as well as with solving typical problems or even assisting with hotel services.

In terms of hotel operations, artificial intelligence (AI) can significantly improve hotel operations by:

- Automatizing routine tasks such as reservation processes and contactless check-in, allowing staff to have more time to provide personalized service to guests;

AI can also offer an enhanced tourist experience achieved through the use of chatbots and virtual assistants to consult and assist in the booking process, while also responding to customer queries and making recommendations when requested by guests.

- Artificial intelligence can also optimize the room cleaning process through the use of sensors and cameras to monitor and control the temperature, lighting and security of guest rooms, optimize pricing and revenue management through data analysis and predictive modelling and improve energy efficiency through the use of intelligent building systems (https://hoteltechreport.com).

- AI can also improve the overall efficiency of hotel operations to forecast the demand, to manage inventory and optimize logistics, ultimately improving the guest experience by providing more personalized recommendations and experiences (https://hoteltechreport.com).

In terms of hotel revenue management, the artificial Intelligence (AI) can significantly improve hotel revenue management by using forecasting models based on previous periods, as well as forecasting future demand and revenue, incl. optimizing pricing and availability to maximize revenue (Citak et al. 2021).

The artificial intelligence can help the hotel or other travel organization to use energy more efficiently and economically (https://hospitality.economictimes.indiatimes.com)

Another opportunity to apply digitization in the hospitality industry is through the use of chatbots, a software solution that is implemented on a website, in a messenger, in a mobile application or elsewhere, providing users with information through text, images, video, audio, links, etc. Chatbots offer the ability to perform a variety of tasks, from answering frequently asked questions to automated assistance with reservations and service inquiries, collecting customer information, questionnaires, and more. Another aspect is that they can be accessed through a QR code with a link to the bot or a specific part of the bot, such as information, a form, a menu or anything else, which creates an even more pleasant experience for the guest, having the possibility of quick inquiries, sales and upgrades. The functionalities of each specific chatbot depend on the needs of the business, where it will be implemented and with whom it will communicate – with customers, partners or employees (umni.bg).

Chatbots have been used on social media platforms, providing support to customers by responding to their questions and giving near-instant answers, 24 hours a day, seven days a week. This is invaluable to hotels because it provides speed and instant response times that are almost impossible to maintain in human-to-human interaction.

One of the most recognizable examples is Sam, an intelligent travel chatbot that is particularly useful for frequent travelers and business travelers (Citak et al, 2021).

The functionalities of each specific chatbot depend on the needs of the business, where it will be implemented and with whom it will communicate – with customers, partners or employees (umni.bg). With the help of chatbots, the customer engagement costs can be reduced and thus to improve customer experience in the following directions by:

- Responding to guest inquiries at every stage of the guest experience. Before the stay, the chatbot can assist with the booking and make the process easier for the guest himself. When the guest is in the hotel, the chatbot can also answer questions about the hotel services (https://hoteltechreport.com).

- Processing requests with the aim of facilitating transactions for guests. For example, an in-house guest can ask the chatbot to make an additional movie or car rental reservation (https://hoteltechreport.com).

- Encouraging direct bookings and upselling by offering special promotions or offers for direct bookings or room upgrades on the checkout page. During the guest's stay, the chatbot can be useful in promoting the restaurant or additional services offered by the hotel complex.

- Increasing the efficiency of communication with guests as they will receive faster and more accurate answers to their inquiries and will be able to easily communicate with the chatbot through their preferred channel. At the same time, hotel staff are also facilitated as the chatbot answers routine questions, leaving them time to deal with other crisis situations at work.

- Increasing revenue and direct bookings by using artificial intelligence to recommend upsells and offers to guests at every step of their journey. Indirectly, a chatbot can also increase revenue by boosting your guest review scores https://hoteltechreport.com).

Choosing the right hotel chatbots for the hotel depends on several variables, some of which come down to personal preference, but most of which depend on the hotel's characteristics and budget, its location, and how it is positioned and promoted to potential travelers and hotel guests based on property characteristics that typically show similar product choices.

In this regard, according to a survey of hoteliers, the following part-bots are the most used and popular among hotels (https://hoteltechreport.com):

- The highest high score is for Asksuite (98% rated by 417 hoteliers).

- The most recommended chatbot is again Asksuite (98% rated by 417 hoteliers).

- Famous restaurant chains like Burger King and Taco Bell have introduced their chatbots in the hospitality and travel industries to stand out from the competition as well as serve their customers quickly. The function of the chatbots in this case is to welcome the customers by recommending the menu after which the shopper selects the pickup location, pays and is told when he can go to collect his food (https://marutitech.com).

- Chatbots are not only useful for restaurant staff as they reduce work, but they can also provide a better customer experience.

There is a wide variety of hotel robots, each designed to serve a unique purpose. We will focus on the most popular models of robots based on their purpose and the tasks they are intended to perform.

- *Robots designed to welcome guests*

Sometimes referred to by titles such as "guest ambassadors", these robots are strategically placed within the site, aiming to guide tourists by providing directions on the location of a room and how to get there, as well as making local recommendations. food or a specific local restaurant located near the hotel. The humanoid appearance of these robots is also intended to be welcoming and helpful in cases where staff are busy with work of a different nature during peak times of the year (https://www.revfine.com).

Another example of front desk robots is the service robots at Hen na Hotels, Japan. The automated hotel chain popularized the concept of robot receptionists.

- *Robots providing transportation assistance*

A robot suitcase called Travelmate is an example of robotics used for luggage purposes. It's essentially an autonomous suitcase that can follow you around on its own. It uses anti-collision technology, has 360-degree rotation capabilities and eliminates the need to carry, pull or push a suitcase.

- *Robots to work in travel agencies*

Some travel agents Amadeus have experimented with a robot called 1A-TA powered by artificial intelligence. The purpose of the robot is to assist in the work of the travel agency by

serving customers depending on their needs and destination preferences (https://www.revfine.com).

- Service robots can be equipped with different levels of artificial intelligence: mechanical, analytical, intuitive and empathic (Huang & Rust, 2018). Mechanical intelligence refers to the performance of standardized and routine tasks that require a minimal level of training (e.g. YO2D2, a room service robot, at Yotel Boston). Analytical intelligence uses systematic and rule-based learning from big data and offers the option of applying logical thinking to decision-making. For example, chatbots find a suitable answer to a customer query by extracting it from big data collected from customer FAQs (https://www.revfine.com).

Most of the researchers study what is artificial intelligence and its positive impact on industries. We believe that robots will change the business processes as well as the relationships between people inside the organizations. We share the opinion that the disadvantages of using them for the hospitality industry will be more than the advantages.

Artificial intelligence still copies human faces, trying to recognize human emotions but not showing emotional intelligence. For sure the errors will be decreased, but people prefer to work with other people, to receive positive energy and feedback from others. This is the success of travel blogs as instruments to digitalize the hospitality industry. Travellers trust other travelers with similar hobbies that share their experiences. This form of electronic word of mouth has become very popular. Most of all people are driven by different motives in their search behaviour of information. They want to satisfy their social needs as Yordanova, 2016, says, they seek advice from other people and they look for empathy.

Intelligence and artificial intelligence are too different terms. Humans possess intelligence and it can be a subject of measurement in many ways. What about the emotional intelligence? Robots do not have such and will never show. This skill is crucial especially for the travel industry as the main focus are people and the experience they receive. Travelers go to specific places as they have specific expectations formed by word-of-mouth, some travel blogs, etc. No matter if they face a robot at the entry of the hotel and are accommodated by a robot, they want to share their emotions and this can not happen with robots.

A very popular form of application of digitization in the hospitality industry are travel blogs. Travel blogs are defined as "*individual entries that relate to planned, current or past travel…are the equivalent of personal online diaries…typically written by tourists to report to friends and families about their activities and experiences during travels*" (Banyai, 2016). Blogs are primarily used as a social form of interaction and self-expression, where people can post positive and negative experiences, but also opinions and beliefs (Banyai, 2016). People blog because it is a form of expression free from external censorship where people are able to provide the "real" self (Banyai, 2016).

A travel blog is an online travel journal full of travel stories, photos and videos that document travellers' experiences and allow them to share those experiences with friends and family members, fellow travellers, and even strangers they meet online" (Winsky, Dickow, 2021). In addition, travel blogs represent purposeful actions through which bloggers want to help fellow travellers, as bloggers create and present narratives of their travels that are completely

realistic (Winsky, Dickow, 2021). Thus, this multimedia format is directly connected to the life worlds of its authors and to the worlds of its readers who seek information and inspiration for their upcoming travels. In this regard, researchers Jeuring and Peters (2013, p. 211) define the travel blog "as having its own dynamics of information flows, allowing writers to express themselves and to influence and inform people around the world" (Winsky, Dickow, 2021).

Travel blogs are electronic versions of word-of-mouth advertising, which yields excellent results. Typical of this form of digital technology in tourism is that the type of interaction is user-user, i.e. the information content is created and directed by users who, guided by their positive experience, want to share it with others interested in the respective tourist destination (Parusheva, 2023).

What is interesting in this case concerns the information, which can be in the form of a story, photo material or video, created by the tourist user himself and aimed at people with similar activities and hobbies who read blogs (Yordanova, 2016). In the conditions of a pandemic crisis, these travel blogs seem to have gained even more popularity, where information related to travel and excursions is mostly published.

Weblogs offer dynamic content thus making them more attractive to users as they have the option of either reading textual content or viewing video or photos of a travel destination, making them different in format and content from traditional media. There the tourists share about their experience in the form of a story, but the sharing of audio and video material is increasingly entering (Yordanova, 2016). Many of the blogs in the virtual space provide an opportunity for readers to post their comments and add photo material as well. Travel blogs are equally valuable both in terms of making the decision of the given tourist, reading or sharing video and text, and as a tool for the organizations themselves if they are created by a hotel or tourist site (Yordanova, 2023).

There is also an opportunity for promotion of own tourist sites. It is a case where travel bloggers create their own brands and implement business models that are the result of their main activity as bloggers (Winsky§ Dickow, 2021). In their personal blog, many web bloggers share their experiences and thus form certain expectations for potential tourists. In this regard, Yordanova, 2016 considers the travel blog as a communication channel of the many-to-many type, similar to word-of-mouth advertising. An example of a travel blog, discussed by Winsky§ Dickow, 2021, is the blog for internal travel *The Travellette* and *Mochileando por el mundo*, written in German and Spanish languages.

Web blogs were mainly studied by ch.t. of the advantages they bring to the visitors and to the organizations in the field of tourism. There are a few publications, including Banuyia, 2016, analyzing 30 travel blogs across three different travel blog websites: travelpod.com, travelblog.org and travbuddy.com, which sets out as a research objective to establish how tourists construct order and make sense of their experiences.

According to Banuyia, 2016, the majority of bloggers wish to communicate with an audience by using terms such as "you", use personal characteristics in the narrative, which shows that bloggers have had a historical social relationship with readers. In their blogs, they use a narrative style, detailing all the steps of their journey through the moment of leaving their

home, the journey itself, and the end of it, thus seeking empathy and easier inclusion of readers in their experiences.

We consider that during the search for information about a given tourist destination, the reading of publications and comments by the potential tourist passes through both types, the aesthetic being important in view of making the final decision to visit the tourist site. ideas, views, traditions, financial relationships, hyperlinks and more.

Social networks, a very old and widespread mechanism for distally mediating interactions between people, have become prevalent in the Internet age thanks to the abundance of interfaces that allow people to follow the lives of friends, acquaintances and families, the number of people on social networks has grown exponentially since the beginning of this century. Facebook, LinkedIn and MySpace, contain millions of members who use these networks to monitor each other, find experts and engage in trade deals when necessary. Social networks themselves provide many opportunities for organizations in the field of tourism from a marketing point of view, demographic profiling and targeting only people who are interested in purchasing the relevant tourist package (Wilcox, Stephen, 2012).

However, the success of social networks is not only based on the number of active users, but also on the amount of time users spend on these websites. Online social networks are used by hundreds of millions of people every day to communicate and share experiences with others. They have become a vital tool for connecting people and sharing information. Social networks allow people to create profiles containing information about themselves (eg photos, interests and personal information) and are therefore a great opportunity to create virtual relationships as well as maintain family relationships by allowing people to easily share personal thoughts, pictures and achievements (Wilcox, Stephen, 2012).

Of course, there are differences between social media and social networks in their nature and purpose. There is a distinction between social networks and social media. It is expressed in their different purposes. Social media, which are a mixture of social networking sites, blogs and wikis are places where authored content is created. At the same time, social networks are used to communicate between users with similar hobbies and interests.

Best practices examples

1. Travelling Buzz is an English-language blog about travels and adventures in Europe in which they perform different types of tourism from extreme sports such as skydiving and kayaking in the Black Sea to interesting city trips, the blog itself provides useful and interesting information for foreigners who want to visit Bulgaria and to see its sights (https://www.travelsmart.bg/).

2. Trips with Rosie is a blog from which you can get inspired for your next trip, its creator is Rossi from Varna – a dreamer, a traveler in love with the sea, sunrises and photography. Whether abroad or in Bulgaria, the blog provides a lot of stories to read for a given destination, hidden sights, as well photo locations, as well as lots of tips on how to preserve nature clean and safe while travelling (https://www.travelsmart.bg/).

3. When Woman Travels is a travel blog targeted to the tender part of humanity and discussion of problems, that women face when they travel. The author, Gerry Vladeva, uses her own experience over the years spent as an expat in different countries and from her own travels to give specific advice and recommendations to women who want to travel more (https://www.travelsmart.bg/).

4. "Endless Journeys" is an author's blog by Veneta Nikolova – journalist and traveller, wherever there are travelogues, videos and photos from her travels around Bulgaria and abroad, focusing mostly on little-known corners – ethnographic villages, old monasteries and fortresses, abandoned churches, sheltered natural areas, as well as interviews with interesting people she met during her travels from Bulgaria.

"Journeys Without End" was nominated for The annual award of the Ministry of Tourism in the category "Publication on tourism in Bulgaria for 2016 in an Internet blog' (www.pateshestvia.net).

Digitization can take the form when a hotel or restaurant uses social media for social media campaigns or mere advertising channels. The goals of the virtual presence of the hotels and restaurants are various and reflect their digital maturity as we have discussed above.

 Data from the study found that 73% of people agree that they are more likely to stay in a hotel that offers self-service technology to minimize contact with staff and other guests. According to the data, 77% of travelers are interested in using automated messages or chatbots to make service requests, with 38% of respondents wanting a fully self-service model, with staff only available on demand. And 39% want to order room service from their phone or chatbot. That's why 96% of hotels are already investing in contactless technology, with 62% noting that a "completely contactless experience" is likely to be the most prevalent technology in the industry in the next three years (https://umni.bg/).

Choosing the right hotel chatbots for the hotel depends on several variables, some of which come down to personal preference, but most of which come down to the hotel's characteristics and budget, its location, and how it is positioned and promoted to potential travelers and hotel guests based on property characteristics that typically show similar product choices.

Chatbots are not only useful for restaurant staff as they reduce work, but they can also provide a better user experience for customers.

For example, Taco Bell's Chatbot uses Slack messenger where the customer has the option to order food from the restaurant's "tacobot" and order from the menu. They can ask questions about available items and even customize the order by removing or adding items using a normal human voice (https://marutitech.com).

The best example of this so far is an AI robot called Connie used at the Hilton hotel chain. It is used for consultation and information support, providing information about the hotel, sites and attractions that are located near the given destination and are worth visiting (Citak et al., 2021). What is special about it is its ability to learn from human speech and adapt to individuals. In other words, its capacity and productivity increase with each contact with a tourist (Citak et al., 2021). For example, ALICE Housekeeping uses artificial intelligence to automate and optimize room allocation.

EasyWay Guest Sentiment uses AI and machine learning to detect and track guest sentiments and emotions by analyzing words, phrases and emoticons used in messages throughout the tourist journey.

Conclusion

In the evolutionary aspect, at first web technologies have been used as well as hotel reservation systems before the emergence of artificial intelligence and automation processes in tourism. Subsequently, this development trajectory continued with the widespread adoption and dissemination of social media and tourism communities and a shift to the realization of mobile tourism in recognition of the high mobility of users of tourism information and tourism services.

Rapid technological development and innovation lead to paradigm shifts, making a transition from an industrial society to an information society. We are witnessing the information transition, which has greatly affected all spheres of life and industry. If the first industrial revolution involved the process of mechanization and the introduction of steam and water power, and the second industrial revolution involved the introduction of mass production and assembly lines based on electricity; the third went under the motto of automation of production and the emergence of computers (Youssef, Zeqirl, 2021). Today, we observe how artificial intelligence and robotics inevitably enter life, change communication patterns and create new added value.

The fourth industrial revolution includes a range of technological developments such as CPS, IoT, AR, VR, AI, robotics, big data, blockchain and 3D printing. There is a stream of work that examines the connections between the hospitality industry and the various pillars of Industry 4.0 such as the Internet of Things, artificial intelligence, virtual reality, big data and robotics (Youssef, Zeqirl, 2021).

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