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Handbook of Technology Application in Tourism in Asia

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Handbook of Technology Application in Tourism in Asia

With 127 Figures and 108 Tables

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Technology in Smart Tourism: Concepts and Applications

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Abstract

The development of tourism competitiveness at this time is largely determined by the support of technology applications in terms of tourism information communication between tourists. Ease of access ranging from transportation's order transaction information (aircraft transportation, ships, and online taxis), accommodation (resort or five-star hotel), destinations, and events are subjects for consideration. This book chapter discusses the concept of smart tourism supported by information communication technology. These two parameters are an element of the strength of the attraction of cultural tourism and tourist sites, which are equipped with the potential for handicrafts supported by the potential strength of culinary tourism (gastronomy). This book chapter also discusses the potential of information technology that increases tourism competitiveness and hospitality with ease and friendliness, which contributes to strengthen the factor of choice of tourists for tourist travel decisions. In addition, the strength of future tourism market trends is caused by industrial innovation and shifting tourist behavior due to communication technology support. All this greatly increases the potential for smart tourism.

Keywords

Technology information · Smart tourism · Competitiveness · Gastronomy

Introduction

The competitiveness of the global traveling and leisure industry has influenced social-economic, technological information, and environmental health. In this chapter, a lot will be discussed about the influence of information technology factors in supporting the development and growth of tourism's competitiveness industry (Anwar & Hamilton, 2005; Buhalis et al., 2019). These factors tend to force managers or tourism entrepreneurs to find out strategically the operations in developing a global and national market through various virtual and physical value-added strategies and approaches integrated physically and nonphysically (Buhalis et al., 2019; Dwyer et al., 2008). Some factors are the needs of tourists for entrepreneurs in the tourism industry to become strategic initial movers, in terms of planning, combining emerging communication ideas and technologies, and implementing various businesses' choice convenience strategies for tourists' decisions. Such ideas create new tourism flows in the industry later (Fan et al., 2020; Nuryyev et al., 2020).

Throughout the several decades, a research has described sustainability as a trend on the ground: the sustainable manner by building the foundation of cellular communication technology into an indispensable commodity in the tourist business and the decision-making process of tourists and natural tourism relationships that lead to the use of cellular activities to emphasize the strive to create intelligent concepts (Neuhofer et al., 2015).

Empirical evidence against smart tourism based on cellular technology shows the importance of ease of information communication between supporting sustainable tourism in responding to new tourists in making decisions or choosing their place to travel. It helped to resolve environmental problems mainly based on observing the negative impacts on tourism. Sustainable tourism development focuses on programs to minimize the negative impacts on environmental use and maximize social and economic impacts by proposing environmental conservation efforts to stakeholders, such as tourists, local residents, and tourism entrepreneurs (Buhalis et al., 2019).

Many researchers explore the competitiveness of tourism and sustainable tourism. They explored the competitiveness of new tourism's potential, partnerships, government alignments, and the role in managing the environment management of tourist destinations. All these aspects are important to sustaining tourism information management (Nuryyev et al., 2020).

The release of iPhone has driven the adoption of smartphones and the spread of cellular networks. Cellular communication technology becomes an important determinant to improve the quality of communication and social information and tourism industry businesses, both directly and indirectly. The communication technology indirectly provides easy access to information about the performance of a place or tourist destination that contains testimonials from several tourists who have visited the tourist destination. This has become a reference for foreign tourists. In addition, prospective tourists get easy information about the availability of a place to rest starting from star or classy hotels to standard and valuable quality hotels in accordance with the abilities and expectations of tourists. Furthermore, tourists can access information about available infrastructure. In fact, they can easily book the hotel at a fair price before they visit or when they visit by booking through the android mobile application media that is equipped with available applications (Buhalis, 2019; Fan et al., 2020).

Media in Information Technology

Furthermore, information technology (IT) supports smart tourism and hospitality through several media such as Long-Term Evolution (LTE) and Wi-Fi, Near-Field Communication (NFC), and TCP/IP Protocol.

LTE and Wi-Fi

The cellular operators offer LTE wireless network services (WNS) aggressively, while mobile device is increasing actively to offer tourist products that supported LTE's networks. LTE has been touted as the fastest wireless network today. The maximum speed of LTE can reach 299.6 mbps for downloading and 75.4 mbps for uploading data (Arsenault et al., 2020).

Moreover, the WNS network can easily access collection of the performance of tourist destinations, while simultaneously providing a virtual experience of location

performance to tourists' cellular is creating tourism's value. The data includes physical infrastructure of tourist destinations, social connections, and information on costs or costs with time efficiency in a sustainable manner. Cellular technology facilitates the interaction of information and images between tourist expectations and environmental performance or complete tourist destination performance information containing testimonials from tourists who have visited there, adjusted to the expectations of potential tourists. This can be a reference or benchmarking for potential tourists (Fan et al., 2020).

Furthermore, information communication technology (ICT) is gradually revolutionizing the tourism industry. Smart tourism and the Internet support interactivity between tourism companies and potential tourists. This is a new opportunity and challenge on the world of tourism business in the future that more focused on technology-centric tourists. Only tourism businesses that appreciate opportunities where ICTs easily inform the management of tourism resources can be successful in increasing tourism accessibility (Buhalis, 2019; Buhalis and O'Connor 2005; Fan et al., 2020).

Near-Field Communication (NFC)

Recently, advances in information communication technology over tourism activities has had a significant impact on tourism performance. It facilitated the tourism industry with supporting media NFC for short distances that opens the tourism field (Pesonen & Horster, 2012), while the close links with the development of tourism competitiveness and infrastructure of ICTs have increased, as well as tourist arrivals. The development of ICT and infrastructure has opened up great opportunities to grow and strengthen tourism (Adeola & Evans, 2019). Meanwhile, Internet proliferation and technological innovation are building 3D virtual tourism world (Huang et al., 2016). Furthermore, it is increasing the use of software that can be used for tourism purposes, mediating information communication technology in the tourism experience. The embodiment of information technology affects the enjoyment and enhances the experience of tourists (Alford & Clarke, 2009; Nuryyev et al., 2020; Steinbauer & Werthner, 2007; Tussyadiah et al., 2018; Xiang, 2018).

Protocol TCP/IP

The Internet is an interconnected network system that connects data or information to computers or cellphones throughout the social communication accessed to various tourism information. This resource is part of every tourist in the world of tourism. They can access global information easily through resources or libraries. The use of the Internet to communicate and transact with tourism businesses is growing rapidly in the tourism and hotel industry throughout the world (Buhalis, 2019; Nuryyev et al., 2020).

Information Technology Infrastructure (ITI)

The function of this communication ensures the continuous improvement of tourism destination. The interactions customized ITI supporting accessibility of the information on tourism. Based on the elaboration of several journals with information technology research areas that support the tourism and hospitality industry, 12 smart tourism and hospitality supporting infrastructures (Fig. 21.1) were found and through 3 types of communication media (LTE and Wi-Fi, Near-Field Communication (NFC), and Protocol TCP/IP).

The entire media infrastructure communicates information that describes and converts digital data onto visual or other important data. At the same time, ITI developed from these three technologies media, communication, and interaction. At the same time, data access supported various types of needs by ITI to tourists with the concept of smart tourism and hospitality (Bettinger & Merry, 2019; Buhalis & Amaranggana, 2015; GENÇ, 2020; Gretzel et al., 2015; Jovicic, 2019; Li et al., 2017; Prentice et al., 2020b; Peceny et al., 2020; Vecchio et al., 2018). ITI (Fig. 21.1) consists of artificial intelligence, augmented reality marketing, big data, blockchain, cloud computing, chatbot, emerging technology, high-performance computing, Internet of Things, payment gateways, recognition technology, and wireless connectivity.

Artificial Intelligence

Through this technology, hotel owners will be able to predict the moment precisely. This technology can also determine the exact complaints about guests and see from

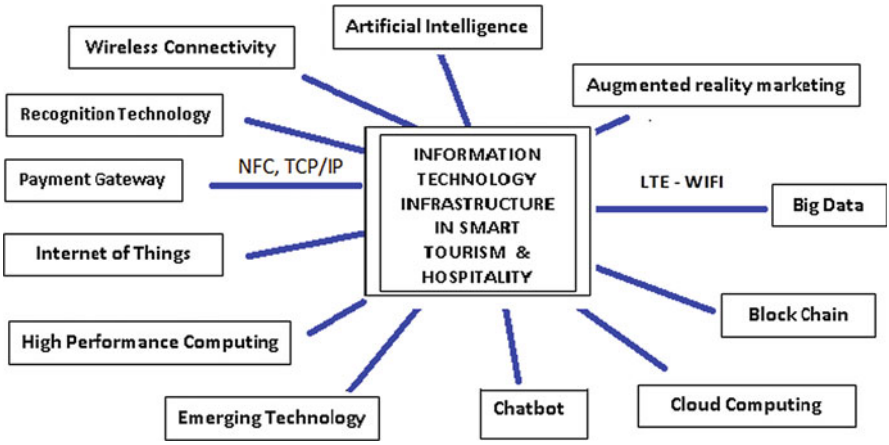

Fig. 21.1 Information technology infrastructure. (Source: Modified from Lama et al., 2020; Peceny et al., 2020; Prentice et al., 2020b; Yassine & Shah, 2020; Adeola & Evans, 2019; Bettinger & Merry, 2019; Jovicic, 2019; Buhalis, 2019; Xiang, 2018; Navío-Marco et al. 2018)

the branch and room where the complaint originated so that it is followed up immediately.

Artificial intelligence (AI) has the ability to rationalize and take action that has the best opportunity to achieve certain goals for traveling (Yassine & Shah, 2020). The perpetrators of tourism in the future should begin to develop AI. AI is the key to increasing tourism competitiveness and winning the tourism industry competition. With AI, all digital travel data can be processed to analyze the trends of tourists, changes into their behavior and interests, and what is needed by tourists (GENÇ, 2020). For the government, AI is very important in making policies and regulations in the tourism industry. As for tourism businesses, AI is needed to improve services and ease of information about tourism business decision-making in the future (Prentice et al., 2020b; Yassine & Shah, 2020).

Through this technology, hotel or tourism entrepreneurs will be able to predict a check in trends. This technology can also determine the exact complaints about guests and see from the branch and room where the complaint originated so that it is followed up immediately (Prentice et al., 2020a; Rajan & Saffiotti, 2017; Timms, 2016; Webster & Ivanov, 2020).

Understanding three fundamentals concepts of artificial intelligence and the progress made from it is very surprising. Attempts to advance the concept of AI. The outcomes of innovations that familiar to tourists. These technologies are extraordinary that emerged the useful AI with several stages (Prentice et al., 2020a; Timms, 2016), namely, data management, natural language processing (NLP), and software management.

Augmented Reality Marketing (ARM)

With this technology, guests can take a virtual tour of the rooms and around the hotel to find out the facilities—attractions offered around the hotel. Augmented reality marketing (ARM) is used as social marketing communication digitally and is becoming a current strategic trend in tourism and hospitality's business world (Yassine & Shah, 2020). ARM has been built by tourism businesses on a device communication's media system with a blend of reality and themes that added interaction with the sensory experiences of tourists. ARM is able to help improve perception of the addition of interactive information levels in real time with a marketing approach that is integrated with information technology applications and tourist activity records (GENÇ, 2020).

Big Data

The use of data collection is growing rapidly in almost all industries, as is hospitality. Big data used to offer valuable experience like the hotel recommending suitable tourist locations that obtained digital traces of tourist technology obtained from various sources, such as social media, tourist portals, business applications, chatbots,

and others (Kim et al., 2019). This data is obtained directly (real time), so it is very useful for speed in decision-making. With this big data (Sivarajah et al., 2017), service providers or managers can easily obtain data on tourist behavior such as movements, preferences, purchasing decisions, and activities carried out by them. The use of big data like this will become the mainstay of marketing and tourism promotion becoming increasingly digital and personal (Zhong et al., 2016).

The more personal it is, the more effective it is to touch the hearts of tourists. Utilization of big data has been applied to several countries (Kim, 2017). Europe, for example, Estonia, has been recording with Mobile Positioning Data (MPD) since 2009. Because the application of Schengen Visa in the European Union makes the movement toward tourists between European countries itself insignificant, there are no immigration checks across borders anymore. This technology can easily record movements toward countries in Europe and recognize accurately.

Belgium, Ireland, Spain, and the Netherlands have conducted pilot studies of data roaming under the Eurostat Pilot Project. The same thing has been done in Oman, Eni of the United Arab Emirates, which also consisted of several countries, such as Tanzania and the Philippines. Currently, the implementation of the tourist survey and the Passenger Exit Survey is two of the surveys carried out by the Tourism Statistics in Indonesia. Utilization of big data (Song & Liu, 2017) has already been implemented this year for these activities, but the impact has not yet been felt in the regions. It is hoped that in the coming year, big data can be utilized more to the regions so as to facilitate access to information and communication in the interaction of tourism activities (Inanc-Demir & Kozak, 2019; Line et al., 2020; Xu et al., 2020).

Big data is supporting tourism-hospitality industry (Kim et al., 2016; Song & Liu, 2017) rated as the right step to find out the right number of foreign tourist arrivals. Steps for implementing big data (Liu et al., 2017; Vecchio et al., 2018) in tourism are carried out by the Central Statistics Agency (BPS) with MPD-like consensus, no longer in surveys that take multiple sampling and have short time span. All border crossers carrying cellphones are automatically recorded. Therefore, the benefits of big data-based foreigner registration are enormous (Kim et al., 2016; Mariani et al., 2018; Vecchio et al., 2018; Xiang et al., 2017; Xiang et al., 2015).

Blockchain

Blockchain is a digital tourism data storage system that contains records that are connected to cryptography. The blockchain system can take the form of digital transaction records consisting of many servers. This technology helps tourism transactions become much easier because tourists no longer need the presence of intermediaries. Utilization of blockchain technology is very helpful in the development of the tourism industry (Khan et al., 2017). In addition, blockchain technology is expected to provide the right information when used in the tourism sector, including for more efficient payment system transparency (Willie, 2019).

In other words, blockchain is a peer-to-peer technology that is a medium for payment transactions using Bitcoin. Bitcoin has been known as a digital currency

with various advantages, such as its nature that is not controlled by an institution (Underwood, 2016) or certain individuals, are not affected by inflation, and are safe to carry and transact anywhere because they move on blockchain technology. Bitcoin can be stored in electronic media that is in the hands of tourists, such as smartphones they have, in the form of applications that usually referred to as wallet or Bitcoin wallet. This wallet can be opened to the Web or in other devices, so users also do not need to worry if their smartphone is lost because money is still safely stored in the form of Bitcoin that is easily accessed on other devices. With Bitcoin, tourists don't need to bother carrying large amounts of conventional money when traveling and no longer need to worry about holding their wallets (Ølnes, 2016).

Cloud Computing

Technology-based business solutions are now starting to be implemented in various aspects of life to the business industry. Various technological inventions help facilitating the activities and interactions of tourism business easily found. The use of technology and information (IT)-based media currently have a significant influence of promoting tourist destinations.

Compared to conventional media, the use of IT is far better because it can provide accurate data such as how many tourists visit one tourist destination. Conventional media had limitations, especially in monitoring the interest in tourists to an area that cannot be done in real time. Utilization of IT is often constrained by limited labor and funding. One way to overcome this is to utilize the use of cloud storage to maximize existing technology. Cloud computing services have a large enough capacity to accommodate the data that users need. The data and applications can be accessed and owned by Internet users more easily (Davidovic et al., 2015).

More and more tourists are making a number of tour operators trying to make information technology implemented in its place, whether in terms of promotion to tour packages or lodging reservations done online. The problem faced requires expensive costs. An application of information technology in tourism has become more economical with the implementation of cloud computing to maximize tourism services (Parwekar & Gupta, 2020).

In the tourism business, cloud technology can be used for flight scheduling, pricing, managing customer complaints, knowing traffic patterns, and response analysis on social media. To run a business comfortably when using cloud technology, naturally adequate security and infrastructure are needed. Google Cloud recognizing the need for both matters is very important. Therefore, they implement a system of Data Loss Prevention (DLP). One of the functions of this security system is to prevent lost data and protect data that is private and sensitive, ranging from email addresses to credit card numbers to telephone numbers.

Utilization of IT in the tourism business is often constrained by limited labor and funding. One way to overcome this is to utilize the use of cloud's storage to maximize existing technology. Cloud computing services (CCS) have a large

enough capacity to accommodate the data needed by tourists so that data applications can be accessed and owned by them more easily (Raut et al., 2017).

Tourism data connect through virtual data of CCS (Moreno & Xu, 2011). It usually offered to access data based on location. We can classify cloud as follows:

- Public Cloud. It is a comprehensive computing infrastructure located at the location of a tourism entrepreneur.
- Community Cloud. This cloud is shared between members of the organization in order to achieve common goals.
- Hybrid Cloud. As private-public's cloud, it allows tourists to use one of the two, depending on the goals they want to achieve.
- Private Cloud. It allows tourists to operate all computing infrastructures themselves. The level of security and control will be very high when they use private networks.

The popular trend in the tourism business world is supported by cloud computing (CC) information technology as tourism interaction onto the computer or mobile hard drives of tourists. They do not access data onto their computer or mobile hard drive. CC stores tourism data at a distance and is synchronized with other Web information (Li et al., 2016).

Tourism cloud computing (TCC) architecture consists of front-end devices, back-end platforms, cloud-based delivery, and networks. Front-end devices are used by tourists to access tourism data. Meanwhile, the back-end platform uses various computers, servers that combined to a back-end platform. Furthermore, cloud-based delivery makes the Internet a data and application management center, where tourists are granted access rights to enter the application to obtain information about tourism easily and quickly. Currently, the development of tourism is growing. Moreover, TCC helps increase the number of tourists as well as to promote tourist attractions. As a result, numerous business owners make TCC technologies implemented in tourist attractions so that it attracts tourists in terms of promotion to book traveling packages or hotels online (Yang et al., 2017). Finally, the network is processing tourists log into TCC (Ross & Blumenstein, 2015).

Chatbot

This technology enabled a service to allow a display. Chatbot understands questions. The hotel facilitated with this service and focus on more complex matters. Chatbot is a chat service that is actually a feature used very often by technology-savvy travelers (Melián-González et al., 2019). Nevertheless, the difference between the reply to the chat process was a robot or virtual figure (Buhalis & Cheng, 2020). This is indeed according to its name that contains the word bot, which is short for Internet robot. With chatbot, the robot/virtual character of it gave artificial intelligence or AI which has the ability to read a mimic of human

conversations as they are chatting with voices to ordinary people. Certainly, it provides a lot of convenience for the business that runs.

Nevertheless, Yahoo has just launched a digital tour guide for iOS users. The application is called Yahoo Radar. Like tourist applications in general, Yahoo Radar provides restaurant recommendation features and info on interesting shows, landmarks, and other symbols of the destination. However, this application can be even more useful if tourists use Yahoo email as their primary email. All travel information, such as flights, hotels, and car rental reservations, are organized on behalf of the user in the Yahoo Radar application (Saglam & Nurse, 2020). By integrating all information on an email, this application is different from the others. Users are provided with ease for information relating to, for example, flight delays, cancellations, or gate changes.

Actually, tourists are not required to make Yahoo Mail. It has the ability to manage email from other providers such as Gmail, Outlook/Hotmail, and AOL. In addition, Yahoo also cooperates with Yelp and TripAdvisor to share information data used for travel. Users can also create a wish list of desirable destinations and get tips of other travelers. In other words, Yahoo Radar is a digital book for trips and reservations. Another thing that makes Radar different is the chatbot feature, or it can be said of a virtual travel assistant (Ukpabi et al., 2019), which has recently become a popular gimmick because of its artificial intelligence (Haldén and Yao Håkansson 2020). Nevertheless, the process passed by using the chatbot feature may take longer. It cannot provide specific answers and according to what the user wants. This experiment is clearly used to bots now (Ivanov, 2020).

Emerging Technology

Emerging technology is the development, combination, or integration of several preexisting technologies (Edmunds et al., 2019; Halaweh, 2019; Khezri et al., 2020; Liao, 2016). Some of the factors driving this emerging technology are as follows:

- The progress of science and technology
- Changes in the needs/desires for humans
- Competition pressures getting tighter and tighter
- Government regulations/policies

This technology called a hologram is a form of image created using laser light that presents information on three-dimensional (3D) form. Light or light rays make the image look as if it is spinning or moving and can also reflect the colors of the rainbow. Holography Technology is used as the latest safety technology, which will continue to develop. The use of this Holography Technology has been widely used in developing companies, where this technology is used to laminate product packaging to make it attractive, thus increasing the image of the company's products on the market, and also as a guarantee of product authenticity, because with this technology, the product will be difficult to fake.

High-Performance Computing System

High-Performance Computing System (HPCs) used to handle large amounts of data and computing resources that are not as quickly processed (More et al., 2020; Singh et al., 2019). Usually, HPC tourism requires large amounts of forecasts, simulating 3D images, and improving existing tourist accommodations. HPC is used in tourism activities including the need for information on adequate infrastructure and support planning for tourism-related facilities (Huang et al., 2020; Isler & Widmer, 2020; Puertas-Martín et al., 2020).

Internet of Things

At present, the development of ICT is very rapid in supporting smart tourism in the form of Internet of Things (IoT) technology. This is a new experience for tourists who crave STHI data access. This technology helps tourists control on-off lights in hotel rooms or make it easier for them to regulate the temperature of the room according to their wishes (Prasath et al., 2020; Qu et al., 2016). In addition, this technology is also used to make the online travel booking process easier about tourists (Vecchio et al., 2018).

Payment Gateway

The world of tourism has become one of the sectors most actively accelerated by the government lately, and even not a few investments are made by the government and private sector in this sector. The velocity of money in tourism is indeed large, some in the form of cash and cashless. We all know payment gateway has an intermediary function between merchants and banks to facilitate transactions, for example, tour operators that want to accept payments for credit card or use a virtual account. Therefore, the only solution is to collaborate with payment gateway (Lama et al., 2020). Likewise, one hotel to other hotels connected to online travel agents (OTA) such as Traveloka, Flight Tickets, and others actually already use payment gateways, and only OTA cooperates with payment gateways to support the payment process (Al Mulla & Nobanee, 2020).

Benefits of a Business Entity Using a Payment Gateway

Automatic Payments

By using a payment gateway and integrated with a system owned by a tourist business entity, it made payments processed automatically. A hotel has its own booking website. As the inventory selection process is complete and integrated with the payment gateway, the payment will automatically have completed right

then when using a credit card. Using a virtual account or bank to transfer funds, the payment gateway system will automatically contact the hotel website for further processing. It is usually processed in the form of reduced room availability and sending vouchers or proof of reservation to customers (Al Mulla & Nobanee, 2020).

Many Ways to Pay

Tourists today can easily use a payment gateway that provides many payment channels such as credit cards, virtual accounts, EMoney, and convenience stores. With many choices of how to pay, they can easily choose from it (Ahmad and Mohan Agrawal 2012).

Improve Brand

Current technological developments must indeed be immediately addressed by all sectors; the tourism sector is no exception. This indirectly improved the brand image of the tourism business entity itself. Many more benefits can be taken from the payment gateway. There are even hotels that provide credit purchase services, travel tickets, and payment points online bank in collaboration with payment gateways (Al Mulla & Nobanee, 2020). Therefore, the guests that stay overnight will have no trouble in making payment transactions. They will just visit or contact the front office (Lama et al., 2020).

Recognition Technology

This technology offers hospitality that is used as a solution to facilitate the hospitality industry's focal points in a sustainable manner by enhancing operational aspects such as security and providing a no-friction experience in each different guest contact point (González-Rodríguez et al., 2020; Ciftci et al. 2020). Facial recognition software becomes a change of interaction for the hospitality and tourism industry into tourist travel. This technology can create a higher level of personalized service and open new service options. The solution to utilize this biometric technology accelerates the check-in and checkout processes, reduces waiting time, increases security, and enhances the overall hotel guest experience.

Wireless Connectivity

Wireless connection is a connection between computers in a network of using cables. This network usually has a hotspot as a means of connecting emitting signals. This network has limited range (range) because it is a signal. Wireless connection is one of the new alternative innovations to be able to access the Internet using radio waves.

This wireless connection is a solution to Internet users that have difficulty accessing the Internet using cables such as fiber optics, telephone lines, or other leased lines. It is called wireless because the connection used from the user to the Internet service provider does not use cable at all but uses radio waves.

Wireless connectivity is a connection done without using a cable and uses certain radio waves to replace the role of the cable as a liaison between one device and another device (Feijóo et al., 2006). Furthermore, wireless connectivity transforms mobile devices and allows them anytime or anywhere for a network learning and student interaction. Many visions of the future of tourism are easily accessed everywhere to wireless connections between affordable, fast, and reliable costs.

Now there are a lot of wireless connectivity through various ways such as cellular networks, wireless LANs, Bluetooth, ZigBee, ultra-wideband networks, Wi-Fi, and satellite networks. In addition, the launching to cloud computing helped tourists to share resources along with connectivity (Sánchez et al., 2020). Tourists are no longer limited to specific locations or devices for uploading, accessing, or sharing tourism and hospitality activity data, increasing their mobility and reducing infrastructure costs for accessing or sharing tourism activity data (Kim & Kim, 2017; Pesonen et al., 2015).

Information Technology (IT) in Tourism and Hospitality

The media (Fig. 21.2) for conveying the experiences of tourists, tour operators used the technology to communicate initial experiences online to prospective tourists in the form of tourist-driven Web content delivered before, during, and after the tour with audio podcasts or online video clips.

This makes the audio tour to use on site via their mobile phone or iPad. Information technology provides interpretation of cellphones or handheld devices, connecting tourists with other potential travelers. This is an e-information to see or done on the website of potential tourists that becomes e-tours (electronic tours) for potential tourists. In this way, it helps prospective tourists to have greater experience (Navío-Marco et al., 2018).

Tourists through ICT architecture (Fig. 21.2) can easily access all tourism information, and all about smart tourism could be easily accessed through information technology infrastructure. Therefore, every prospective tourist can prepare themselves by choosing the accommodation or lodging or environmental health and public health at the tourist sites they plan to travel (Buhalis, 2019; Buhalis et al., 2019). Likewise, it regards for the cultural attractions of various foods or gastronomies as well as regional handicrafts and transportation information, not to mention land, sea, and air transportation or long- or medium-distance transportation (Kusumawardani & Aruan, 2019). All of this information is very easy to access through the information technology media. Tourists could travel across country or across islands. They generally use air or sea transportation. They can easily order through online applications for purchasing of airplane and ship tickets (Gretzel et al., 2016). In addition, they can request additional services such as trips that are

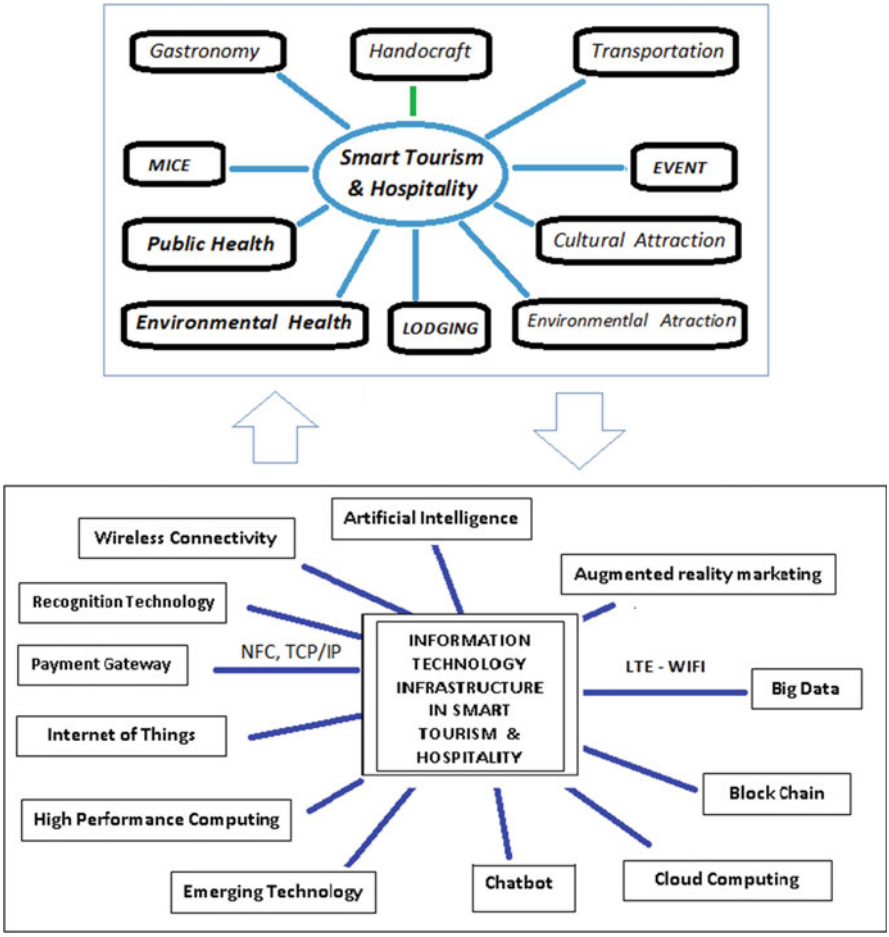

Fig. 21.2 Information technology in smart tourism and hospitality. (Source: Modified from Arsenault et al., 2020; Fan et al., 2020; Lama et al., 2020; Nuryyev et al., 2020; Peceny et al., 2020; Prentice et al., 2020b; Yassine & Shah, 2020: Adeola & Evans, 2019; Bettinger & Merry, 2019; Jovicic, 2019; Buhalis, 2019; Buhalis et al., 2019; Navío-Marco et al. 2018; Xiang, 2018; Khan et al., 2017; Kim., 2017; Kim & Kim, 2017; Gretzel et al., 2016; Neuhofer et al., 2015; Pesonen et al., 2015)

equipped with food orders according to their tastes of the media. Furthermore, they can easily order a taxi online in the destination country through the application of their mobile phone (Gretzel et al., 2016).

Furthermore, MICE activities have advantages in events such as meetings, exhibitions, or incentive trips. In general, these tourists come from business people, professionals, and the government (Bueno et al., 2020). MICE tourist activity consists mostly of decision-makers including company CEOs, and their numbers reach seven times greater than ordinary tourists (Natalia, 2017).

Conclusion and Implications

Cloud computing is the main IT infrastructure that supported the competitiveness of smart tourism and hospitality, and wireless connectivity is important in supporting the quality of information accessibility and ease of information technology, while cloud computing speeds up access time of information on tourism and hospitality. Likewise, big data becomes important to the accessibility of various aspects of tourist information that is needed by potential tourists to support their decisions. High-performance computing is an information technology tool for tourist application that is accessed by tourists, and it becomes the main quality of the ease of access to tourist information. They easily access all information. The information obtained become their consideration in deciding to travel and spend their vacation or leisure by recreation at the tourist attractions with the transportation options that best suit their desires. Besides, they can choose a place to stay that suits their tastes including the price planned by them during the tour.

The smooth running of smart tourism and hospitality activities runs with easy access to information obtained with the support of information technology media supported by information technology infrastructure. Wireless connectivity becomes important to the continuity of information accessibility for tourists in their activities for planning or accessing information about a tourist destination. The tourism destination words of hospitality can be in the form of cultural attractions, handicraft tourism, or attractions of the natural coastal environment or the scenic beauty of an area that is natural to its local culture. It is very clear that information technology really supported their decisions on potential tourists in deciding the destination for their destination. This affects the motivation and behavior of the tourists in deciding their vacation plans either in the medium term or in annual tourism planning.

Utilization of ICT began to appear to simply provide promotional reservations system of hotels, packages, management of a tourism database and interaction processes, and other transactions. STHI is certainly supportive of promoting tourist destinations in an area and making it easier for tourists to travel. Previously, airlines relied heavily on ticket sales through travel agents. To buy or order tickets, tourists easily access the Internet. They can book tickets directly, pay online, and even choose their preferred seats and check in early. The activities of booking hotel rooms, ordering airplane tickets, and others can be done freely.

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