

Chapter 15

Mobile Technology and Applications in the Tourism and Hospitality Industry of Hong Kong



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Abstract The tourism industry of Hong Kong is very charming and Information technology has added a new dimension to this industry. Information technology plays an important role as a part of people's everyday lives, its adoption in trade and commerce is increasing sharply, and the customers of the tourism industry expect all facilities and dealing over online. In this regard, the tourism industries of Hong Kong are trying to adopt the latest technological devices to enrich the sector. Moreover, Hong Kong has created a better reputation for its attractive tourism site seeing places not only in Asia but also all over the world. It is a beautiful city, which attracts millions of tourists. It is eminent for its beautification. Further, it is also known as a clean city in Asia. Due to the highly intense competition, they are using modern technology to diminish costs, boost operational efficiency, and mostly to improve the service quality to gain a competitive advantage. This chapter focuses mobile technology and application in the tourism and hospitality industry of Hong Kong. This chapter also covers how Hong Kong uses technological applications (app) to develop its tourism and hospitality industry.

Keywords Information technology · Application · Tourism · Hospitality · Hong Kong

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Introduction

Tourism is an economic portent due to its capacity that helps to inspire regional development (Franzidis, 2019). There are new dimensions, which are being added in the tourism and hospitality industry (THI). Every government tries to develop the tourism industry by using information and communication technology. They are adopting innovative and creative ideas to attract a large number of local and foreign tourists.

Information technology (IT) is playing a crucial role in the hospitality and tourism industry over the last decade. It has facilitated the reduction of costs, boost operational adeptness, and improve services and buyer experience. It benefits not only tourists but also tourism entrepreneurs. Both tourists and all stakeholders regarding tourism businesses can benefit from advanced communication and information systems. It has changed the level of customer service levels. Advanced technology has helped this industry replace luxurious human labor with technological labor. It has lessened many complexities of tourists and reduced costs as well.

E-tourism is getting more popular around the globe. It is being advanced using the internet that has an influential impact on the tourism and hospitality industry. Before buying tourism products, customers go to the websites of the tour operator companies and they search for their best options to enjoy their vacations. It helps them get customers' reviews and their previous experiences. The use of information technology in the THI has helped speed up the operations of the tourists and helped the overall traveling process much more enjoyable effectively and efficiently.

The objectives of this chapter are to identify the role of internet and technology in the development of "Hong Kong tourism and hospitality industry" and explain the present scenario of their tourism industry. Moreover, this chapter also focuses how do they use and apply different technologies such as; "big data, artificial intelligence, machine learning, internet of things and mobile technology in the development of their tourism and hospitality industry".

The Importance of the Internet to Tourism

The tourism and hospitality industry is using "Integrated Marketing Communication" to promote their tourism products and services and the internet plays a big role to expand it across the worldwide. It is helping the tourism industry not only message sharing but also build the brand image of the industry. It is also assisting the tourism industry to expand and transfer its data and considered the most suitable way to make a direct relationship with customers and its stakeholders.

Tourists are now adopting their necessary information from the internet and it is helping them get the latest information within a few seconds from across the world. Every tourism business person is using own web portal to provide the required information to the tourists regarding the hotels, motels, and spots etc. Park and

Gretzel (2007: 46) suggest that the “Web has in fact, revolutionized the way Destination Marketing Organizations provide destination information and the manner in which they communicate and interact with consumers and practitioners”.

The tourism industry is considered now as a highly competitive business. For instance, tourists will have a demand for different travel services like; air travel, hotel bookings, online shopping, car hire, and tour services. A number of different tourism organizations typically provides these services to appeal to them to buy from them. For that purposes, a reliable and the efficient website can help them support in designing tourism and travel services (Rita, 2000; Park & Gretzel, 2007; Southern Cross University, 2007). Tourists can make their own plan to travel based on their availability and a well-designed website can fulfill their wishes and demands. Moreover, Tourism destinations “emerge as umbrella brands, hence, destination marketing organizations increasingly have to identify niche markets and develop their interactivity with potential tourists” (Rita, 2000: 2).

Rita (2000: 2) further proposed that “acting as a gateway providing a single entry point to the destination rather than relying on a fragmented number of individual Web sites”. Tourists are getting more benefit now by using the internet and when they get any lucrative offers like discounts or incentives they try to book as soon as possible following the website. They can plan in their own ways to pass their leisure time and enjoy the vacations. By using the information and communication technology, they are getting access for consuming tourism products and services (Connolly et al., 1998), further it is helping the tourists to make a better decision for travel (Vellas & Becherel, 1999).

The Internet is playing an important role in encouraging and allotting tourism products and services and it is also expediting the enlargement into new segments. It has made the tourist’s decisions easy and simple. By using the internet, they can make better decisions to purchase tourism products and services. The significance of the Internet to this industry is, mostly witnessed in supporting travelers make decisions (Lau et al., 2001).

Mobile Application in Tourism

Tourists are being benefitted in many ways by using different mobile application and Smartphones helps them in their journey (Kenteris et al., 2009; Wang & Fesenmaier, 2013) and have a noteworthy impact on the travel activity. Wang et al. (2011) argue that today’s travelers want risk free travelling enjoyment and try to avoid uncertainty in their journey and they use smartphone as a helping hand to gather all sorts of information throughout all trip phases. In most cases, they rely on mobile technologies to search for information about transportation, accommodation, attractions, etc. Furthermore, tourists enjoy gaming, listening to music, photographing, sharing pictures, watching movies, or reading news by using smartphone in their trips.

Promotion of Innovation and Technology

According to Innovation and Technology Commission (2020), this is the driver for economic growth and helping to increase the competitiveness of Hong Kong tourism industries. In November 2015, the “Innovation and Technology Bureau” (ITB) was established to frame holistic (I&T) policies, thereby raising the development of I&T and related industries in Hong Kong. Moreover, it is helping to improve the quality of life of the citizens of Hong Kong. In her Policy Address in October 2017, the Chief Executive set out eight major areas to step up Government’s efforts to develop I&T, namely increasing resources for “research and development“(R&D), pooling “technology talent”, providing “investment funding”, providing “technological research infrastructure”, reviewing “legislations and regulations”, opening up “government data”, bettering “procurement arrangements and popularizing science education”.

Tourism Scenery in Hong Kong

According to Hong Kong Tourism Board (2015), the tourism industry is a big pillar of Hong Kong’s economy. In 2013, it accounted for 5% of Hong Kong’s GDP. It employs about 269,700 workers, or 7.2% of the total workforce. In 2014, tourist arrivals increased by 12% from 2013 to 60.8 million, accounting for 5% of Hong Kong’s GDP. It hires about 271,800 workers, or 7.2% of the total workforce. The following year, tourist arrivals dropped by 2.5% to 59.3 million, a drop of 2.5% from 2014. It contributed around 5% of Hong Kong’s GDP in 2016 and employed about 258,900 people, accounting for around 7% of total jobs. It contributed about 4.5% of Hong Kong’s GDP in 2018 and employed about 257,000 workers, or around 6.6% of the total workforce. Total tourist arrivals dropped 14.2% to 55.91 million in 2019, reflecting the effects of recent local social events. In the first 5 months of 2020, the Coronavirus Disease 2019 (COVID-19) has taken a heavy toll on Hong Kong’s tourism industry, with overall tourist arrivals falling by 88.2% year-on-year to 3.50 million (Table 15.1 and Fig. 15.1).

Use of Technology in the Hong Kong Tourism and Hospitality Industry

Hong Kong is adopting the latest technology in their tourism industry to attract the large number of tourists. They are using big data, artificial intelligence, machine learning, internet of things, etc. Some uses and application of tourism and hospitality industry of Hong Kong are discussed below:

Table 15.1 Number of visitor arrivals Hong Kong 2008–2019

Number of visitor arrivals in Hong Kong from 2008 to 2019 (in million arrivals)	
2008	29.51
2009	29.59
2010	36.03
2011	41.92
2012	48.62
2013	54.3
2014	60.84
2015	59.31
2016	56.65
2017	58.47
2018	65.15
2019	55.91

Source: Census and Statistics Department of the Hong Kong Special Administration Region Government (2020)

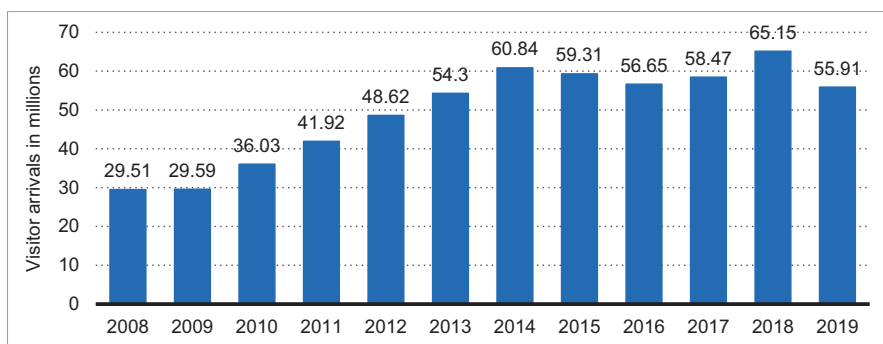


Fig. 15.1 Number of visitor arrivals Hong Kong 2008–2019. (Source: Census and Statistics Department of the Hong Kong Special Administration Region Government, 2020)

Use of Big Data

Big data is a contemporary innovation in the tourism research. Before the application of big data analysis, researchers and experts used mathematical modeling to predict the tourism opportunity. In 2003, as example, researchers predicted that China (7.99 million) is the largest tourism market for Hong Kong, followed by Taiwan (3.86 million), Japan (2.37 million), USA (1.77 million) and UK (0.97 million) in 2008 (Song et al., 2003). The advantage of big data in the tourism may have stronger prediction because it can utilize data from users, devices and operations (Li et al., 2018) that can give trustable and more acceptable result. Recent research

investigated different aspect of big data to investigate and analyze different information and different issues in tourism research (Li et al., 2018). Although, current research shows successful implementation and use of big data in tourism, to the best of our knowledge we found really less evidence of big data usage in Hong Kong tourism industry. Tourism researchers may utilize various analytic techniques and adopt big data in the Hong Kong tourism industry for innovative tourism strategies.

Use of Artificial Intelligence and Robotics

Artificial Intelligence (AI) and Robotics are playing vital role in the contemporary era in various sectors such as education and assessment (Hossain et al., 2019). Tourism is not an exception in this regard. Integrated modern technologies are associated to make the AI successful in the tourism industry. The key intention is to improve the overall customer service and travel experience (Samala et al., 2020). Although AI and robotics are unable to exceed the human contribution, those can be helpful and save a lot of money for the business by reducing the employee cost. In particular, during the pandemic, robotics and artificial intelligence gained an increased attention in the technology arena (Zeng et al., 2020). Recent literature identified that people and robots can co-create unique involvements (Tung & Au, 2018). To the best of our knowledge we found really less evidence of AI and robotic usage in Hong Kong tourism industry. Tourism researchers may utilize various AI and robotic adoption in Hong Kong tourism industry for innovative tourism experience.

Use of Machine Learning Technology

Machine learning and its usage in the tourism industry is an example of precipitous change in the tourism and hospitality management. People can remember the holiday experience and machine learning made it much easier than earlier. Ordering through a translating App is an example of ubiquitous machine learning technology where the App works as a machine as instructed by the user (Parvez, 2020). Recent research identified future and current fluctuations by the machine learning (ML). The usage of ML in tourism and hospitality is not similar as other industries. ML is utilized for revenue administration, functioning analytics and consumer understanding development (Wadhe & Suratkar, 2020). To the best of our knowledge we found really less evidence of ML usage in Hong Kong tourism industry. Tourism researchers may utilize various ML adoption in the Hong Kong tourism industry for innovative tourism experience. ML can be used in solving diverse activities and

future forecasts. As a result, in the Hong Kong tourism industry, policy makers can understand the possible increase or decrease in the upcoming season with the help of algorithms used by ML.

Use of Mobile Apps and Smartphone

Recently, the travel and tourism industry in Hong Kong gained an increased attention in using mobile Apps and smartphone. Mostly, the users of smartphones and Apps are young generation and the number of young travelers aged 15–29 has been considered as the fastest-growing tourist segment recently. The top 10 tourism flows and destination according to UNWTO (2020) are UK, Germany, Spain, France, Brazil, Netherlands, USA, Ireland, Italy and Belgium. Surprisingly, there is no Asian country in this list. There are plethora of issues and concerns behind this. However, to improve the situation, for Hong Kong in particular, use of mobile apps and smartphone is an essential tool. People in general are now habituated and used to the upgraded technology of smartphones. As a result, increased focus on tourism development based on mobile Apps and smartphone may enhance the Hong Kong tourism industry. Hong Kong Tourism Board launched various user friendly Apps for smooth travel for the international travelers. Some of the popular apps and useful tools for the tourists are: csl Wi-Fi, HKeMobility, HKG My Flight (Official), Hong Kong Licensed Hotels and Guesthouses, MTR Mobile (Hong Kong Tourism Board, 2020).

The matter to think about is the innovative and emerging technologies based on smartphones. This could be specialized apps based on Hong Kong that can assist the tourists in searching not only travel destination but also with relevant necessary amenities and support. Wi-Fi and mobile internet facility is satisfactory in Hong Kong at present, however, the tourists need to know the facilities in advance (Fig. 15.2).

The picture shown above is an example of the usage of Apps and other relevant facilities in Hong Kong. If travelers carefully scrutinize the overall facilities in Hong Kong, they can easily understand that from arrival till departure from Hong Kong, the usage of Apps and smartphones are everywhere. There is one specific Apps called “Travel Apps”. Also, to get around, there are guidelines, FAQs and customer services. Overall, the scenario of mobile Apps and usage of smartphones are evident in Hong Kong in the contemporary era.



Fig. 15.2 Usage of some common apps in Hong Kong. (Source: Hong Kong Tourism Board, 2020)

Use of the Internet of Things (IOT)

The use of internet of Things (IOT) in Hong Kong tourism is noticeable, however, it could have been better. IoT can be used in transportation to and from the destination, various excursion and attraction areas, local and popular cultural events, tour operating services and overall marketing activities. In addition, IoT can be used in Web Analytics Service (WAS), big data, mass customization, mass customerizaion, business intelligence, Competitive Intelligence (CI) and E-metrics (Wise & Heidari, 2019; Cavada et al., 2017). Wireless technology such as RFID (Radio Frequency Automation Identification) can control and monitor the tourism activities effectively. For example: in various crowd areas such as amusement parks, travelers could be followed and monitored. Wireless Sensor Network (WSN) can compute the number of travelers arrive the destination and based on the limitations, the number can be controlled or monitored. Intelligent chip can be used with the attraction ticket to locate the tourist in case of emergency. Electronic Product Code (EPC) can help the tourists to identify or locate a particular product of their choice. Object Naming Service (ONS) can collect necessary information from the tourist about any facility required. These all are the examples of IoT which are effective and emerging technologies in the Hong Kong tourism industry. Although Hong Kong tourism is developing with latest technologies, IoT should be considered as well.

Applications Used in the Hong Kong Tourism Industry

Following Visit Hong Kong (2021), some useful apps used in Hong Kong tourism industry are discussed below:

My Observatory

The “My Observatory” is a highly popular weather app developed by the Hong Kong Observatory, providing personalized weather services. Users may obtain location specific weather information, as well as notifications of latest weather warnings. If the notification of location specific rain and lightning forecast is turned on, alerts will be issued up to one, two hours in advance when lightning, or rain is detected.

My Flight

It is a popular app used to provide passengers about flight related information. It includes real time flight information, announcements of the latest status updates of saved flights, baggage arrival notice, baggage arrival notice sharing, push notifications of airport special announcement, location sharing and traffic information, passenger guide, ferry & coach schedule, shopping & dining information, food ordering and airport location map.

HKeMobility

Transport Department's "HKeMobility" is an all-in-one mobile traffic and transport application. It enables faster and appropriate search for routes of different modes of transportation, journey time and fares, and circulates real-time traffic news to enable tourists and the public to plan for a beautiful travel arrangement.

App1933

The KMB and LWB mobile app, "App1933", provides users with the latest bus route information and estimated bus arrival times to help with journey planning. The point-to-point route search function provides the most appropriate route to the destination, while passengers can be notified to get off the bus when approaching the designated bus stop by the alight reminder function. Users can find their way to the nearest bus stop by using GPS and obtain route information from a customer service representative using Live Chat.

CitybusNWFB

"CitybusNWFB" App by New World First Bus Services Limited and Citybus Limited provides passengers an intelligent travelling experience with Next Bus Arrival Time Enquiry, Route Information to Sightseeing Spots, Point to Point Route Search and Alight reminder.

Wi-Fi.HK

Wi-Fi.HK mobile app facilitates tourists and the public to search “Wi-Fi.HK” venue locations in Hong Kong which are offered by public and private organizations. The main feature of Wi-Fi.HK service is the provision of at least 30 min of free Wi-Fi usage with no need for registration and no download of Apps by tourists and the public.

Conclusion

This research explained the uses & application of technology in the tourism and hospitality industry of Hong Kong and how it has renovated and improved a lot than before in the tourism and hospitality industry. This chapter also investigated the most recent scenario of tourism in terms of technology acceptance and adoption in Hong Kong. The authors also analyzed various issues related to tourism, such as mobile apps and technology in the tourism industry and hospitality industry, big data and artificial intelligence in the tourism and hospitality industry, machine learning and internet of things etc. This information will help the tourists get the updated information regarding the usage of information technology in the tourism and hospitality industry in Hong Kong.

Through the representation with upgraded technology, tourism industry in Hong Kong reinforces numerous benefits and advantages for the tourists that made the industry more attractive than before. Findings of this study explore that Hong Kong tourism industry is adopting different technologies such as mobile apps and different technology that is helping them to provide superior services to the tourists and earn huge revenues from this sector.

This research will help in different stakeholders of tourism and hospitality industry. First, it will benefit the local and foreign tourists. Secondly, it will help hotel and motel managers. Finally, this research will be helpful for the academicians, policy makers and tourism entrepreneurs etc.

The basic drawback of this research is the lack of empirical data that can help add more information. Thus, future research can focus on ensuring both valid and reliable data to present an inclusive research output.

References

- Cavada, D., Elahi, M., Massimo, D., Maule, S., Not, E., Ricci, F., & Venturini, A. (2017). Tangible tourism with the Internet of things. In B. Stangl & J. Pesonen (Eds.), *Information and Communication Technologies in Tourism, 2018* (pp. 349–361). Springer.

- Census and Statistics Department of the Hong Kong Special Administration Region Government. (2020). *Hong Kong monthly digest of statistics, February*. Census and Statistics Department of the Hong Kong Special Administration Region Government.
- Connolly, D. J., Olsen, M. D., & Moore, R. G. (1998). The internet as a distribution channel. *Cornell Hotel and Restaurant Administration Quarterly*, 39(4), 42–54.
- Franzidis, A. (2019). An examination of a social tourism business in Granada, Nicaragua. *Tourism Review*, 74(6), 1179–1190.
- Hong Kong Tourism Board. (2015). *Hong Kong: The facts*. Retrieved from: https://www.tourism.gov.hk/pdf/FactSheet/2015/tourism_fact_sheets_2015_en.pdf. Accessed 28 Feb 2021.
- Hong Kong Tourism Board. (2020). *Travel apps*. Retrieved from: <https://www.discoverhongkong.com/in/plan/traveller-info/travel-apps.html>. Accessed 28 Feb 2021.
- Hossain, S. F., Shan, X., & Nurunnabi, M. (2019). Is M-learning a challenge? *International Journal of e-Collaboration*, 15(1), 21–37.
- Innovation and Technology Commission. (2020). *Hong Kong: The facts sheets*. Retrieved from: <https://www.gov.hk/en/about/abouthk/factsheets/docs/technology.pdf>. Accessed 28 Feb 2021.
- Kenteris, M., Gavalas, D., & Economou, D. (2009). An innovative mobile electronic tourist guide application. *Personal and Ubiquitous Computing*, 13(2), 103–118.
- Lau, K. N., Lee, K. H., Lam, P. Y., & Ho, Y. (2001). Web-site marketing for the travel-and-tourism industry. *Cornell Hotel and Restaurant Administration Quarterly*, 42(6), 55–62.
- Li, J., Xu, L., Tang, L., Wang, S., & Li, L. (2018). Big data in tourism research: A literature review. *Tourism Management*, 68, 301–323.
- Park, Y. A., & Gretzel, U. (2007). Success factors for destination marketing web sites: A qualitative meta-analysis. *Journal of Travel Research*, 46(1), 46–63.
- Parvez, M. O. (2020). Use of machine learning technology for tourist and organizational services: High-tech innovation in the hospitality industry. *Journal of Tourism Futures*. <https://doi.org/10.1108/jtf-09-2019-0083>
- Rita, P. (2000). *Internet marketing destinations in the global tourism marketplace. Proceedings INET 2000*. Retrieved from: https://web.archive.org/web/20160103041524/http://www.isoc.org/inet2000/cdproceedings/7a/7a_2.htm. Accessed 28 Feb 2021.
- Samala, N., Katkam, B. S., Bellamkonda, R. S., & Rodriguez, R. V. (2020). Impact of AI and robotics in the tourism sector: A critical insight. *Journal of Tourism Futures*. <https://doi.org/10.1108/jtf-07-2019-0065>
- Song, H., Wong, K., & Chon, K. (2003). Modelling and forecasting the demand for Hong Kong tourism. *International Journal of Hospitality Management*, 22, 435–451.
- Southern Cross University. (2007). *Destinations online: Approaches for regional tourism organisations*. Southern Cross University.
- Tung, V. W., & Au, N. (2018). Exploring customer experiences with robotics in hospitality. *International Journal of Contemporary Hospitality Management*, 30(7), 2680–2697.
- UNWTO (2020). *UNWTO tourism data dashboard*. Retrieved from: <https://www.unwto.org/unwto-tourism-dashboard>. Accessed 28 Feb 2021.
- Vellas, F., & Becherel, L. (1999). *The international marketing of travel and tourism*. Macmillan Press.
- Visit Hong Kong. (2021). *Hong Kong: Useful apps*. Retrieved from: <https://www.visithongkong.gov.hk/main/usefulApps?language=EN>. Accessed 28 Feb 2021.
- Wadhe, A. A., & Suratkar, S. S. (2020). Tourist place reviews sentiment classification using machine learning techniques. *2020 international conference on Industry 4.0 Technology (I4Tech)*.
- Wang, D., & Fesenmaier, D. R. (2013). Transforming the travel experience: The use of smartphones for travel. In L. Cantoni & Z. Xiang (Eds.), *Information and communication technologies in tourism 2013* (pp. 58–69). Springer.
- Wang, D., Park, S., & Fesenmaier, D. (2011). *An examination of information services and smart-phone applications*. Retrieved from: https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1179&context=gradconf_hospitality. Accessed 28 Feb 2021.

- Wise, N., & Heidari, H. (2019). Developing smart tourism destinations with the internet of things. In M. Sigala, R. Rahimi & M. Thelwall (Eds.), *Big data and innovation in tourism, travel, and hospitality* (pp. 21–29). Springer.
- Zeng, Z., Chen, P., & Lew, A. A. (2020). From high-touch to high-tech: COVID-19 drives robotics adoption. *Tourism Geographies*, 22(3), 724–734.