Chapter 7 Promoting Digital Entrepreneurship and Ecotourism Development Through Smartphone



Mohammad Mainul Hossain, Muhammad Khalilur Rahman, Hamedi Mohd Adnan, Noor Raihani Zainol, and Rolee Sifa

Abstract Digital technology in the recent era makes it easy to stay in touch with friends, and family, and work remotely. The usage of smartphones is a crucial and useful device for the new generation. Thus, this book chapter aims to explore the impact of smartphone usage on digital entrepreneurship and the ecotourism sector. This study used secondary data sources related to digital technologies, including journals and web sources accessible on the Internet. The findings indicated that the smartphone has captured a phenomenal revolution in entertainment, and communication due to its continual development of digital technologies. The findings also identified the development of using smartphones in current situations, attaining experience, better satisfaction, development of smartphone applications, and accessing social networking in smartphone devices which have portrayed the impact of smartphones' proliferation in the context of entrepreneurship and ecotourism sector.

7.1 Introduction

The world has adopted new technology as one of the most important required facilities in their everyday life (Jusoh and Al Fawareh 2017; Rahman and Hassan 2021). The usage of smartphones is a crucial and useful device for the new generation. This technological advancement has also brought massive benefits to both the entrepreneurship and ecotourism industries. Due to the affordability of smartphones, several users particularly tourists and business owners utilize smartphones significantly. Information and communications technologies (ICTs) have had an important effect on the whole tourism business (Dias and Afonso 2021), providing an increase to a young generation of tourism clients. The development of advanced technologies has changed how goods as well as consumer facilities are manufactured and produced (Choudrie et al. 2021). ICTs are now an essential component of the digital marketing and tourism sector businessmen and travelers use technology to develop better experiences and generate more individual experiences. Scholars have specifically argued about the types of progress that ICTs may contribute if the consequences are always beneficial and positive (Anand et al. 2021; Tam et al. 2020). For instance, they showed that businesspeople or entrepreneurs, and travelers may benefit from smartphones and their applications. Considering the advent of the digital market, they are essential to entrepreneurs' capacity to launch, and expand a business and capitalize on new opportunities, which, in return, supports regional and country business sustainability.

At present, it is very general for users of smartphones to download ecotourismrelated applications which are very prevalent and well-known. Although the development of smartphones has supported the strength of the tourism issue significantly, however, little has been known regarding how it has impacted the on-the-go trip experience. Similarly, visitors look for information to assist them in making choices about trying to explore new attractive destinations (Kang et al. 2020), because of this, it is important to know the features of smartphone applications utilized among users, as well as the products and services that visitors look for while utilizing a smartphone for travel applications. In the ecotourism industry, the smartphone offers different features through applications and a wide range of usage. As it has become a growing industry in the telecommunication segment (Saraswathi et al. 2017), it is considered an integrated part of everyday life. For example, searching information, google Maps, browsing social media platforms, writing an ecotourism-related blog, hotel booking, transportation and flight booking, medical facilities, and many others. Furthermore, Ganapathy et al. (2022) identified that ecotourism-related smartphone applications have five fundamental factors which are convenience and ease to use of the application, serviceability of the mobile application, the functional value of the application, loyalty of application, and understandable experience. They also further examined the two issues that are gaining knowledge and satisfaction.

The use of smartphones in the aspect of entrepreneurship tendency among businesspeople has been identified substantially (Hossain et al. 2020). Because it encourages young entrepreneurs to become ambitious and make additional money rather than their regular income. The development of smartphone-based entrepreneurship may provide various opportunities and also motivates to make innovative entrepreneurial propensity which can help to earn money, frequently with minimum or no expense. Moreover, social networking and several types of applications installed in smartphones which are also discovered the advantage of technology (Saraswathi et al. 2017). The features that are included in smartphones are internet browsing, different application, playing games, tracking health status, emailing, listening to music, watching movies and videos, chatting, photo sharing, e-book and journal reading, creating documents, and others. Moreover, social media access from a smartphone has created a vested interest to use the smartphone (Yuan et al. 2021). Masiu and Chukwuere (2018) point out that the usage of smartphones is dramatically increased due to those exciting features such as biometrics, internet browsing, entering email, and accessibility of social media in the twenty-first century. The purpose of the present chapter is to explore the understanding and importance of smartphones and their effect on digital entrepreneurship and the ecotourism industry. Subsequently, the chapter also reviews the adoption of smartphones and their role in entrepreneurship and the ecotourism industry.

7.2 Smartphone Adoption on Digital Entrepreneurship

In general, entrepreneurship refers to innovation and development of the business which is often shown within small and medium businesses (Katila et al. 2012). The adoption of smartphone technology in entrepreneurship which is associated with smartphone applications that can help a business owner in different ways such as via reduced spending, monitoring the business status, online transactions, enhanced profits, reasonable benefits, and the opportunity to establish new enterprise frameworks (Soluk et al. 2021; Remane et al. 2017). In a general sense, the adoption of smartphone technology is typically becoming much more crucial despite their generation, structure, region, or trade. Enterprises may develop strong value and achieve economic benefits by utilizing digital technologies (Soluk et al. 2021), which could encourage them to start their own business (Autio et al. 2018). The adoption of smartphone technology can be essential for underdeveloped countries. Nevertheless, there is a lack of justification for the impact of utilizing digital technologies in entrepreneurship from prior findings (Nambisan 2017). Thus, enhancing the widespread research in this discipline which is very important, and it may also support entrepreneurs in resolving certain difficulties that are imposed by organizations. Furthermore, Soluk and his colleagues (2021) emphasized that the majority of the study that has been conducted on the adoption of digital technology and mainly concerned with developed countries, in which the facilities and accessibility are very diverse compared to those in underdeveloped nations, for example, in the aspect of internet service, mobile networks use and the accessibility of relatively affordable devices. Given that smartphone technology allows enterprises to take advantage of commercial prospects and it could have a significant effect on entrepreneurial ventures.

7.3 Smartphone Adoption on Ecotourism Development

In the advance of information and communication technologies (ICTs) instruments, smartphone technology is one of the pioneering tools of ICTs which has achieved popularity during the last decade. Because of this, attention to how smartphones affect tourism has raised in the present years. In common, ecotourism refers to a component of tourism that includes taking liable for travel particularly focusing on natural areas, environmental preservation, and enhancing the welfare of the community as well as society. The adoption of smartphone technology in the ecotourism industry may benefit different investors and it can also persistently assess the tour schedules or substitute utilizing e-route information sources attained through smartphones (Vallespín et al. 2017; Tussyadiah 2016). Moreover, as indicated by Xiang et al. (2015), smartphones and travel applications are becoming prevalent in searching for information that guides travelers to select their destination. There are several studies have investigated how tourism-linked applications impact tourists' behavior. The significance of customer creativity as a determinant of smartphone utilization and

discovered that stronger smartphone utilization was favorably linked with tourists who were youthful, female, knowledgeable, and had better earnings (Tussyadiah 2016). Chen et al. (2018) determined the causes and effects of utilizing a smartphone for a job while on travel. Another study by Vallespín et al. (2017) found that younger visitors utilized smartphones heavily for browsing information, although, visitors aged (35–44 years old) were inclined to make travel purchases. They also identified that distinctions in gender, family status, learning, earnings, and profession had no tangible impact on smartphone use. Some demonstrated that travelers may utilize their smartphones device to connect to the internet, however, outcomes linked to traditional information search behavior, including before travel, may not be valid to such behavior during travel while traveling (Kang et al. 2020). Therefore, the adoption of smartphone technology addressed the technical viewpoints of travel behavior where it can influence travelers to adopt the smartphone applications.

7.4 Role of Smartphones on Entrepreneurship

The role of smartphone technology has been contributing to the entrepreneurship sector profoundly, where this technology reflects positively on business owners in their daily industry activities. Many researchers predicted that smartphone technology is an emerging service that represents crucial value in online business, and it could rapidly substitute the adoption of more traditional desktop applications, with customers realizing the clear aspects of smartphones applications and their friendliness features (Kennedy-Eden and Gretzel 2021; Tan 2017). Similarly, Dias and Afonso (2021) manifested that due to the increasing popularity of smartphone and their applications, small business has experienced a significant in the era of consumer technology. The use of information and communication technologies (ICTs) provides several entrepreneurship developments that are always rising because of economic assets as well as new expertise (Asongu et al. 2018). The smartphone comes with advanced features such as web browsing, personalized applications, touchscreen, Wi-Fi connectivity with a lot more memory storage, and a particular operating system that may affect significantly small and medium entrepreneurs. Moreover, Web 2.0 can be accessed conveniently through a smartphone as like in a computer while it is connected to the internet, thus, enterprises and consumers can communicate effectively in terms of products and services. Smartphone has become so popular in everyone's life around the world. A vast number of entrepreneurs around the globe are using smartphones for many purposes in their daily life (Kibona and Rugina 2015). As smartphones have developed in terms of adding features drastically; therefore, these facilitate people to access social media less effortlessly. According to the report of the International Telecommunication Union, the percentage of people who have access to mobile phones is around 60% (Sarfoah 2017). There is also another interesting fact that people penetrate smartphone usage more in developing countries (Henry and Quansah 2013). For instance, Malaysia has the highest rate of using smartphones where "55 percent of Malaysians use their mobiles to listen to music,

half 50 percent play online games and almost seven out of ten 67 percent Malaysians watch online videos on their phones". On the other hand, a study by Alabdulkareem (2015) revealed that approximately 73% of students and 100% of instructors in that research utilized WhatsApp. WhatsApp was moreover demonstrated to be utilized by female students for academic research, particularly when they were included in bunches. The U.S. market research firm online Marketer (2016) reported that the Asian area has the highest ratio of smartphone access in the globe,), while Taiwan has the largest smartphone access ratio in this region at 73.4%. Thus, based on the above explanation, it is understood that the impact of smartphone technology on the entrepreneurship sector has significantly contributed.

7.5 Role of Smartphones on Ecotourism

The remarkable technological advancement has brought enormous benefits to human life as such in the area of the travel industry. "Smartphones, the Internet-enabled devices incorporated with computer applications and software, are among the eminent breakthroughs in this latest century" (Ng et al. 2017). Due to the effectiveness, compatibility, affordability, convenience, and mobility of smartphones tourists are being incorporated with smartphones for destination purposes (Asongu et al. 2018; Pullen et al. 2015). These smartphones offer more features through the capabilities of downloading customized or personalized applications or documentation as tourists have become familiar with smartphone-centric tourism. Because of prevalent smartphones applications usages, several customers have changed their behavior (Hossain et al. 2020). The new smartphones' features facilitate several applications and vastly increase their productivity (Wang et al. 2020). Additionally, a broad range of facilities, including networking, navigation, and personalized information seeking, are available. For consumers, the service of smartphones is not only a communication tool but also a continuation of their identity and behavior. The acceptance of smartphone technology applications, which are producing enormous changes in how the travel industry operates and how people travel, is an example of this phenomenon (Lu et al. 2015). The application of smartphones has been developing a novel technique for tourist people while they are traveling, known as m-travel, which is described as utilizing applications designed for smartphone devices to help tourists in their travel and events in a certain place (da Silva and da Rocha 2012; Lin et al. 2020). Yu and Dutkiewicz (2013) indicated that connectivity to exclusive resources given access by mobile technology which enables highly engaged visitors' experiences, stands out among many benefits of applications. In the ecotourism sector, smartphone technology can be able to obtain information rapidly on several issues which influence travel including weather, hotels, entertainment, and service of transportation (Dias and Afonso 2021; No and Kim 2014). By using smartphone technology, tourists can access a diverse range of information that can help them to successfully solve issues, discuss their experiences and save memories. Access to these sources of knowledge and study has transformed thoughts and attitudes incorporating highlighting greater adaptability, less preparation, and more traveling. Given the widely demonstrated positive connection between ICT and effective governance, it may possible that smartphone technology can regulate the impact of governance on the environment for the ecotourism sector. The rationale behind the idea that mobile devices can enhance governance and create better business environments is typically on the role of ICT in minimizing any potential information asymmetry (public organizations and ecotourism agencies) that can be linked to operating business. Similarly, smartphone technology may operate as sharing information technology that can develop products in the doing of the enterprise (Ameen et al. 2021).

This chapter has discussed and explored how smartphone technology and its applications have contributed to the entrepreneurship and ecotourism sectors. The study has demonstrated that smartphones are transforming the ecotourism environment, pursuing to meet the advancing demands of visitors who need a high-speed connection to related information and different types of subjects. In general, modern tourist is their own tourist companies, seeking diverse experiences and through smartphones, tourists can access facilities and information wherever and at any time. Smartphone technology has changed the way travelers live and the tourism area experience. As an innovative technology of ICT, the smartphone is recognized significantly by many scholars, and it has cleared the way for a vast selection of services at every stop, maintaining travelers informed and more connected. There are many small and medium enterprises have adopted the smartphone strategies such as mobile applications, blogs, information seeking, search machine optimization, and social networking. Smartphone-based research is still required to develop and increase the entrepreneurship and ecotourism sector.

References

- Alabdulkareem, S. A. (2015). Exploring the use and the impacts of social media on teaching and learning science in Saudi. *Procedia-Social and Behavioral Sciences*, 182, 213–224.
- Ameen, N., Madichie, N. O., & Anand, A. (2021). Between handholding and hand-held devices: Marketing through smartphone innovation and women's entrepreneurship in post conflict economies in times of crisis. *Information Systems Frontiers*, 25, 401–423.
- Anand, B., Shankar, R., Murugavelh, S., Rivera, W., Prasad, K. M., & Nagarajan, R. (2021). A review on solar photovoltaic thermal integrated desalination technologies. *Renewable and Sustainable Energy Reviews*, 141, 110787.
- Asongu, S. A., Nwachukwu, J. C., & Orim, S. M. I. (2018). Mobile phones, institutional quality and entrepreneurship in Sub-Saharan Africa. *Technological Forecasting and Social Change*, 131, 183–203
- Autio, E., Nambisan, S., Thomas, L. D., & Wright, M. (2018). Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems. *Strategic Entrepreneurship Journal*, 12(1), 72–95.
- Chen, Z., Jiang, C., & Xie, L. (2018). A novel ensemble ELM for human activity recognition using smartphone sensors. *IEEE Transactions on Industrial Informatics*, 15(5), 2691–2699.
- Choudrie, J., Banerjee, S., Kotecha, K., Walambe, R., Karende, H., & Ameta, J. (2021). Machine learning techniques and older adults processing of online information and misinformation: A covid 19 study. *Computers in Human Behavior*, 119, 106716.

- da Silva, A. C., & da Rocha, H. V. (2012, June). M-traveling: Experiences using mobile applications in tourism. In International Conference on Information Society (i-Society 2012) (pp. 26–31). IEEE.
- Dias, S., & Afonso, V. A. (2021). Impact of mobile applications in changing the tourist experience. *European Journal of Tourism, Hospitality and Recreation*, 11(1), 113–120.
- Ganapathy, T., Othman, M. K., & Yahya, A. S. (2022). Development and validation of Ecotourism Smartphone Application Scale (ESAS) and General Experience Scale (GES). *International Journal of Human–Computer Interaction*, 1–17.
- Henry, B., & Quansah, M. (2013). Mobile telecommunication networks choice among Ghanaians. *Management Science Letters*, 3(7), 1839–1850.
- Hossain, S. F. A., Nurunnabi, M., Hussain, K., & Shan, X. (2020). Smartphone-based m-shopping behavior and innovative entrepreneurial tendency among women in emerging Asia. *International Journal of Gender and Entrepreneurship*, 12(2), 173–189.
- Jusoh, S., & Al Fawareh, H. M. (2017). A study of Facebook uses among undergraduate students in Jordan. *International Journal of Advanced and Applied Sciences*, 4(4), 53–57.
- Kang, S., Jodice, L. W., & Norman, W. C. (2020). How do tourists search for tourism information via smartphone before and during their trip? *Tourism Recreation Research*, 45(1), 57–68.
- Katila, R., Chen, E. L., & Piezunka, H. (2012). All the right moves: How entrepreneurial firms compete effectively. *Strategic Entrepreneurship Journal*, 6(2), 116–132.
- Kennedy-Eden, H., & Gretzel, U. (2021). My heritage in my pocket: Mobile device and app use by genealogy tourists. *Information Technology & Tourism*, 23(3), 327–350.
- Kibona, L., & Rugina, J. M. (2015). A review on the impact of smartphones on academic performance of students in higher learning institutions in Tanzania. *Journal of Multidisciplinary Engineering Science and Technology (JMEST)*, 2(4), 673–677.
- Lin, S. Y., Juan, P. J., & Lin, S. W. (2020). A tam framework to evaluate the effect of smartphone application on tourism information search behavior of foreign independent travelers. *Sustainability*, 12(22), 9366.
- Lu, X., Niyato, D., Wang, P., Kim, D. I., & Han, Z. (2015). Wireless charger networking for mobile devices: Fundamentals, standards, and applications. *IEEE Wireless Communications*, 22(2), 126–135.
- Market Research Blog. (2016). Predicted market research trends for 2016. Available at: https://blog.marketresearch.com/predicted-market-research-trends-for-2016 (Accessed 15 October 2022).
- Masiu, T. M., & Chukwuere, J. E. (2018). The effect of smartphones on students' academic life: A perceptive from a South African University. In International Conference on Business and Management Dynamics (pp. 174–183).
- Nambisan, S. (2017). Digital entrepreneurship: Toward a digital technology perspective of entrepreneurship. *Entrepreneurship Theory and Practice*, 41(6), 1029–1055.
- Ng, S. F., Hassan, N. S. I. C., Nor N. H. M., & Malek, N. A. A. (2017). The relationship between smartphone use and academic performance: A case of students in a Malaysian tertiary institution. *Malaysian Online Journal of Educational Technology*, 5(4), 64–76.
- No, E., & Kim, J. K. (2014). Determinants of the adoption for travel information on smart-phone. *International Journal of Tourism Research*, 16(6), 534–545.
- Pullen, D., Swabey, K., Abadooz, M., & Sing, T. K. R. (2015). Malaysian university students' use of mobile phones for study. *Australian Educational Computing*, 30(1), 1–10.
- Rahman M. K., & Hassan, A. (2021). Tourist experience and technology application in Bangladesh. In A. Hassan (Ed.), Technology application in the tourism and hospitality industry of Bangladesh. Springer, Singapore.
- Remane, G., Hanelt, A., Nickerson, R. C., & Kolbe, L. M. (2017). Discovering digital business models in traditional industries. *Journal of Business Strategy*, 38(2), 41–51.
- Saraswathi, V. S., Tatsugi, J., Shin, P. K., & Santhakumar, K. (2017). Facile biosynthesis, characterization, and solar assisted photocatalytic effect of ZnO nanoparticles mediated by leaves of L. speciosa. *Journal of photochemistry and photobiology B: Biology*, 167, 89–98.

- Sarfoah, E. U. N. I. C. E. (2017). Smart phone use for learning: A study on University of Ghana students (Doctoral dissertation, University of Ghana).
- Soluk, J., Kammerlander, N., & Darwin, S. (2021). Digital entrepreneurship in developing countries: The role of institutional voids. *Technological Forecasting and Social Change*, 170, 1–13.
- Tam, H. L., Chan, A. Y. F., & Lai, O. L. H. (2020). Gender stereotyping and STEM education: Girls' empowerment through effective ICT training in Hong Kong. *Children and Youth Services Review*, 119, 105624.
- Tan, W. K. (2017). The relationship between smartphone usage, tourist experience and trip satisfaction in the context of a nature-based destination. *Telematics and Informatics*, 34(2), 614–627.
- Tussyadiah, I. P. (2016). The influence of innovativeness on on-site smartphone use among American travelers: Implications for context-based push marketing. *Journal of Travel & Tourism Marketing*, 33(6), 806–823.
- Vallespín, M., Molinillo, S., & Muñoz-Leiva, F. (2017). Segmentation and explanation of smartphone use for travel planning based on socio-demographic and behavioral variables. *Industrial Management & Data Systems*, 117(3), 605–619.
- Wang, X., Cai, L., Zhu, X., & Deng, S. (2020). Female entrepreneurs' gender roles, social capital and willingness to choose external financing. *Asian Business & Management*, 21, 432–457.
- Xiang, Z., Magnini, V. P., & Fesenmaier, D. R. (2015). Information technology and consumer behavior in travel and tourism: Insights from travel planning using the internet. *Journal of Retailing and Consumer Services*, 22, 244–249.
- Yu, K., & Dutkiewicz, E. (2013). NLOS identification and mitigation for mobile tracking. IEEE Transactions on Aerospace and Electronic Systems, 49(3), 1438–1452.
- Yuan, D., Rahman, M. K., Issa Gazi, M. A., Rahaman, M. A., Hossain, M. M., & Akter, S. (2021). Analyzing of user attitudes toward intention to use social media for learning. SAGE Open, 11(4), https://doi.org/10.1177/21582440211060784.