# The Effect of the use of ICT on the Touristic Experience

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**Abstract**

The quick adoption of information and communication technologies (ICT) across the world, particularly in tourism, aiming to revolutionize the creation of the travel experience or improve it, happens without specifying the most appropriate ICT or its actual results. While visitors adopting personal ICTs in search of fluid, efficient and personalized trips, emerge; regardless of the tourist destination, empowering themselves with smart devices in pursuit of extraordinary experiences and value. The objective of this research was to comprehend the effect of the use of ICT by tourists on their travel experience. Mexican tourists traveling within the country for pleasure using smart devices with internet connection were evaluated. Data were obtained using snowball sampling on social media and analyzed with SEM to define the relationships and the factors that are affected and comprise the smart tourist experience. The results show that there is a preferential use of smartphones and tablets and search engines and maps rather than applications (apps). Also, a notable influence of ICT is experiencing something new and enjoying activities that the tourist wanted to do. The factors comprising the smart tourist experience are learning about oneself during the trip, making the trip more exciting and memorable, and feeling surprised.

**Keywords**

Use of ICT, Smart Tourist Experience, Emotion, Smart Tourism, Tourist Experience

## 1. Introduction

Internationally, billions of people have unprecedented access to mobile technologies [26]. This rapid and intense adoption of ICT in all fields of the human sphere has caused a fundamental change in how tourist experiences are created, exchanged, consumed and shared [6,8].

Although the concepts of smart tourism and smart destinations have been widely promoted, these concepts may be far from the reality of destinations and tourists [7]. ICT adoptions in destinations were aimed to achieve personalization, access to services, and the provision of information in real-time [1,6]; but the industry is still unaware of which are the most appropriate ICTs based on preference, functionality, intensity of use, satisfaction, or improvement of the experience [11] in addition to there being little questioning and analysis regarding whether these adoptions have improved the experience [8, 15, 19]. We note that the tourist in this context is considered only as a source of information.

### 1.1. The touristic experience

The experience is being studied by marketing scholars as experience of consumption using models such as the thought-attitude and emotion model of Holbrook and Hirschman of 1982, the cognitive-affective model of Engel et al. from 1978, the information processing model, the experiential model and various integrative models; but mostly on the theory of consumer culture and Service-Dominant Logic (SDL) [5]. Here, the experience is influenced by the consumer's goals, schemas, information processing, memory, participation, attitudes, affect, atmospheres, attributions, and choices. It has a

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holistic nature that involves the client cognitively, emotionally, and affectively, generating social and physical responses towards the organizations that provide products and services [5].

Regarding the touristic experience, authors such as Quinlan Cutler and Carmichael (2010) define it as a subjective, intangible, continuous and highly personal phenomenon. While Pine and Gilmore (1999) define it using four unique dimensions: education, escapism, aesthetics and entertainment, which are explained by Tan (2017), as follows: the experience of escapism relates to the fact that tourists are "immersed" in the environment, which results in the feeling of escaping from their daily lives, the entertainment experience occurs when tourists passively observe the activities that take place in a destination, the aesthetic experience is created when tourists passively enjoy and appreciate being in the destination environment, and the educational experience occurs when tourists increase their knowledge or skill [21].

Tourists are regarded as coproducers of the experiences [18, 21], experiences are complex ones that provoke memories and emotions related to places. Therefore, a place or a self is experienced in a place. The vacation experience is highly subjective, it is integrated by a search for authenticity, identity and self-realization, in addition to the search for a multifaceted leisure activity, which is significant for the individual. Experiences are made up of sensations, emotions and images, among other hedonic components, in addition to satisfaction. [17, 18]. In addition, Prebenson et al. (2014), consider that there are psychological benefits of the travel experience: relaxation, learning, socialization, and mastery (competence).

Note: personal experience is what is of interest in this research. The word experience is recently being used as a synonym for "touristic product".

## 1.2. Smart experience

According to Gretzel, Sigala, et al. (2015), the experience in the context of smart tourism is efficient and rich in meaning. In it tourists are active participants in the creation of it [8]. Here, the journey also happens in the virtual space [21], consumers have virtual experiences, which leads to the construction of an expanded self and the possibility of a plural identity during digital experiences [5], particularly with the use of smartphones, the experience has been further transformed and travellers are empowered by bringing together information, communication, entertainment, social networking, and mobility-related functionalities [28] in their search for experiences and extraordinary value [12].

Some authors mention that the use of smartphones encourages unplanned activities. They are seen as a portable platform to be in community, socialize and encourage or facilitate opportunities for interaction between tourists, which is recognized as a source of vacation experience satisfaction [24]. We could say the visitor could be creating his own tourist experience by generating for himself a tailor-made touristic product and by regulating his personal experience by using ICT.

On the other hand, the authors indicate that the study of the tourist has been neglected [15, 19], there is a lack of knowledge regarding the access and level of adoption of ICTs by the tourists and the existence of tourists [13], whether in regular or smart tourism contexts [29], and the behaviours previously described in the literature are taken for granted [19].

There is a lack of empirical support to demonstrate that tourists are "smart" meaning they want to have a super connected experience or are able of [7], whether they are at smart or regular destinations. The absence of studies that show that the smart tourism allows the tourist to have better experiences is also recognized [8]. Considering these conditions, the research question to be addressed is: What is the effect of the use of ICT by the visitor in the travel experience?

# 2. Methodology

We used Structural Equation Modelling (SEM) to determine if there is a relationship between the independent variable Use of ICT and the dependent variable Experience. Because the experience variable is a latent variable, this conducted to the factors affected that could compose the smart experience.

## 2.1. Scope and limitations

The ICT Use variable includes the use of smart devices connected to the Internet, including cell phones, tablets, laptops, smartwatches, and desktop computers during their trip, both the use of software (search engines, maps, videos, social networks, travel apps, etc.) and hardware (type of smart devices), the kind of Internet connection, the level of use and the utility that the devices had in activities related to the trip. In this sense, no in-depth study was carried out on applications for mobile devices, nor the use of search engines and internet pages.

Tourist experience as a synonym for the touristic product [12], is not addressed in this study. Personal experience is studied, and it includes an emotional component.

## 2.2. Analysis units

The study focuses on Mexican men and women over 18 years old and up to 70 years old, who reside in the country, with higher than secondary education (undergraduate and postgraduate), and who have visited a destination within Mexico for pleasure in the last six months and have used electronic devices with an Internet connection (smart devices) during this trip.

## 2.3. Sample

Snowballing sampling was used for the data collection, which was done online, following [14, 3, 9], recommendations for the sample size and increase the representativeness and validity of the study. We calculated a universe of about 19,080,758 people. Given the recommendations of [3, 23], and considering the availability of the researcher resources, a simple random probabilistic sample was calculated, using a confidence level of 90%, with a margin of 0.055 error, following statistical sampling conventions, using the formula for finite population. The number of resulting questionnaires was 224.

$$n = \frac{Z^2 * N * p * q}{e^2 * (N-1) + Z^2 * p * q}$$

## 2.4. General research design

The general design of the research allows evaluation of the effect of the Use of ICT in the Experience (which is a latent variable), this is shown in figure 1.

H1: the use of ICT has a positive relationship and an incremental effect on the Touristic Experience.

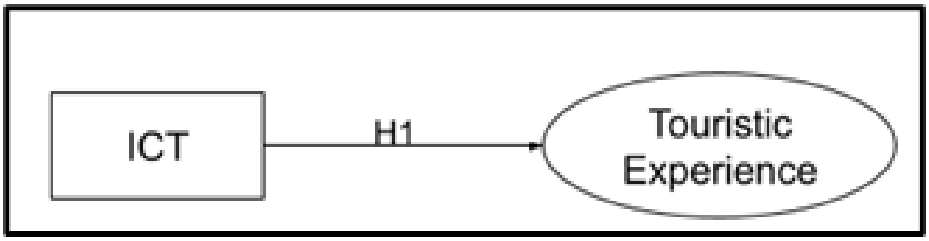


**Figure 1**: General research design Source: prepared by the author

## 2.5. Instruments

An online questionnaire was created using Google Forms from the Google Suite, with 47 reagents, which allow profiling the interviewee, allowing to know the generalities of the trip, the Use of ICT, and

the Tourist Experience. The questionnaire was tested and adjusted through two pilot tests. The results were emptied in SPSS and examined using Cronbach's alpha to check reliability and factor analysis to confirm the validity of the instrument.

The reagents used for the evaluation of the level of Use of ICT were based on the proposal of [22], and modified from the researches of [24, 25, 29] and [29, 10]. The reagents to measure the Touristic Experience were taken from those of Rivera Lozano (2018) and modified based on the items used in the studies by [16, 2].The experience construct encompass factors such as feeling excited, free, close to the local, feeling surprised, feeling confident, getting out of the routine, experiencing something new, different or unique, experimenting, developing personal identity, learning something, generating new skills, having meaningful experiences, having different emotions, memorable experiences, participating in activities, feeling revitalized or refreshed, and enjoying.

## 2.6. Process

To obtain the data, social networks and chats were used as a means of distribution of the questionary based on the recommendations given by the Electronic Marketing Manual for Tourist Destinations [27], as well as by authors such as [22].

The questionnaire had to be filled out on one occasion. The information was collected from November 2019 to January 2020. Social network users were considered more likely to have used mobile devices with an Internet connection during vacations, so it was considered that what [14], call "likelihood with the real population". The people were contacted personally, using social networks such as Facebook, as well as Facebook and WhatsApp chats, through which they were asked to participate and to invite more people who met the profile to answer the questionnaire online, the link to the questionnaire was provided by these means too.

We obtained 227 questionnaires, of which 224 were valid. The data was loaded to Microsoft Excel from Microsoft Office 2011, to be coded and normalized, necessary to perform a principal component analysis (PCA) (Fearn, 2011), or factorial analysis. This standardizing technique does not lose any generality and allows to achieve zero mean and unit variance (Acock, 2013; Joliffe & Morgan, 1992) and retains a greater proportion of the original variation by using derived variables instead of a simple subset of variables (Joliffe & Morgan, 1992). Subsequently, an exploratory and confirmatory factorial analysis was performed using the Stata13 program. Then, for Use of ICT, an index was created using PCA. Subsequently, we modelled through SEM with Maximum Likelihood using the SEM builder of the Stata 13 program, following the suggestions given by [23]. The model was evaluated and respecified using the modification indices to explain more variance in the model.

## 3. Results

The sample is made up of 224 people, of which 132 are women (59%) and 92 are men (41%). 30% of the sample studied at least up to basic education level (high school), 45.8% to a higher level, and 24.2% to a postgraduate level. 99.6% indicated that they used their smartphone during their trip, 85% indicated that they always use their smart devices during vacations and 10.7% that they do so almost always; 64.4% declared that they always plan their trips and 26.7% that they almost always did too, while 64% assign a budget to their vacations and 23.6% almost always assign a budget to them. Only 12% hire accommodation services, food and beverages, recreation, etc., once in the destination.

The most used hardware with WiFi and internet data is the smartphone at 76.33%, while only with WiFi it was the smart tablet at 21.87%. The most used device was the smartphone with 91.96% and the most useful with 94.19%, followed by the tablet with 16.07% being the second most useful with 20.53%. The phone is the most used for all online activity, especially for searching travel information in the tourist destination, communicating with friends and family, and sharing their experience with family and friends (with up to 78.12%). The second most used device was the laptop, for information search and facts confirmation (with a maximum percentage of 10.71% in each activity).

Regarding the use of software or applications, the most used were search engines, followed by maps and social networks. The number of applications used according to the type of destination is higher in colonial destinations, followed by urban ones. The constant use of map and GPS software stands out.

The descriptive statistics about the influence of ICT on the experience is shown on table 1. Regarding emotions, one of the components of the experience, 78.3% indicated that the trip was surprising due to the use of smart devices with an internet connection, in the same way, 77.46% felt excited about their trip, 84.9 % felt safer by using such devices, while 85.3% felt that the destination was safe for the same reason.

The results of the modelling show that not all the factors are affected in a significant way. Factors whose significance is 0.000 were retained in the model. The Use of ICT affects more the learning about oneself during the trip, making the trip more exciting, memorable, and feeling surprised. The significance of the effects of ICT use on the travel experience is 0.001, and its effect is positive since, for each point of technology, the experience will increase by .086 (see figure 2). The goodness of fit shows that at least 93.4% of the covariance in the data can be reproduced by the proposed model (see Figure 3).

**Table 1**

Experience affected by the Use of ICT. Source: prepared by the author

| Percentage | Changes in Experience due to the use of ICT |
|---|---|
| 73.21% | Indicated that she/he experienced something new |
| 58.03% | She/he participated in different activities during the trip |
| 66.51% | Enjoyed activities that really wanted to do |
| 54.91% | She/he had an experience different from previous ones |
| 46.87% | She/he considered that she/he enjoyed his trip at every moment |
| 50.44% | She/he was excited to have new experiences |
| 36.16% | The travel experience made her/him feel revitalized |
| 37.05% | She/he learned something about himself on the journey |
| 44.19% | She/he experienced things that surprised him/her |
| 40.17% | She/he felt that she/he did something significant on the trip |
| 39.73% | The trip helped him/her acquire new skills |
| 47.76% | She/he felt freer during the trip |
| 50% | She/he experienced the local culture more closely |
| 44.19% | She/he considered his trip to be a memorable experience |
| 39.28% | She/he felt that the trip helped him improve his confidence |

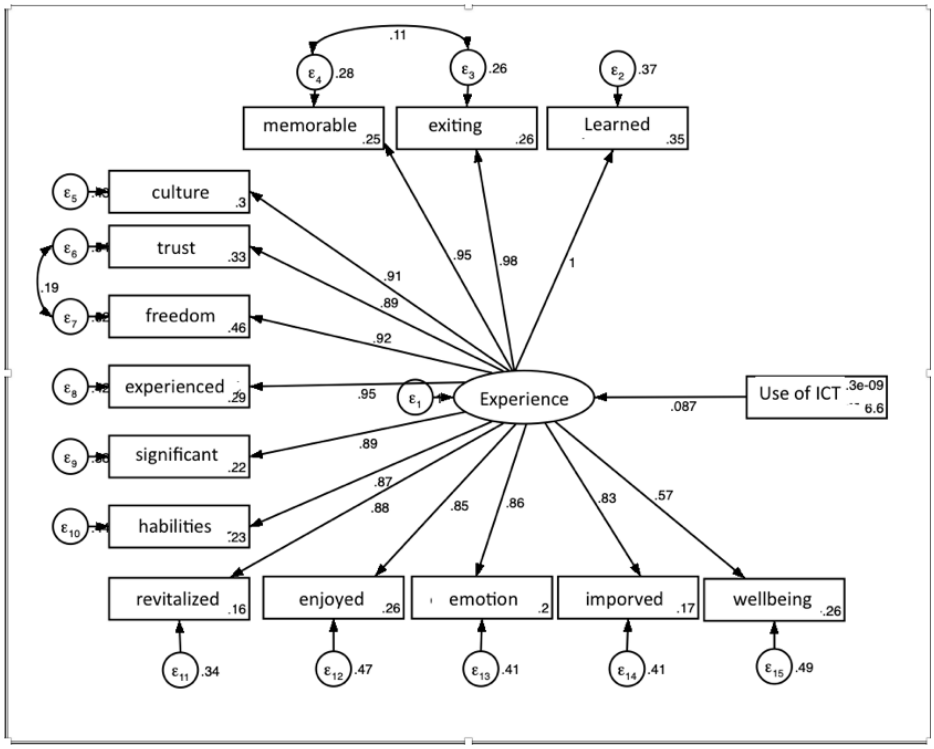


**Figure 2**: SEM Use of ICT effect on touristic experience. Source: prepared by the author

| Fit statistic | Value | Description |
|---|---|---|
| Likelihood ratio | | |
| chi2_ms(88) | 258.698 | model vs. saturated |
| p > chi2 | 0.000 | |
| chi2_bs(105) | 3083.786 | baseline vs. saturated |
| p > chi2 | 0.000 | |
| Population error | | |
| RMSEA | 0.093 | Root mean squared error of approximation |
| 90% CI, lower bound | 0.080 | |
| upper bound | 0.106 | |
| pclose | 0.000 | Probability RMSEA <= 0.05 |
| Information criteria | | |
| AIC | 7903.653 | Akaike's information criterion |
| BIC | 8057.177 | Bayesian information criterion |
| Baseline comparison | | |
| CFI | 0.943 | Comparative fit index |
| TLI | 0.932 | Tucker-Lewis index |
| Size of residuals | | |
| SRMR | 0.034 | Standardized root mean squared residual |
| CD | 0.047 | Coefficient of determination |

**Figure 3**: Modelling goodness-of-fit results

## 4. Results

The results show a tourist who is similar to the one found by [10]. They prefer the smartphone at all times, and if WiFi is available, tablets are preferred. They search for information and help themselves with the logistics of the trip through online maps. They use the web similarly to what [24, 7] reported. In our sample, more than 60% report having carried out activities that allowed them to personalize their trips and about 80%, searched for experiences and activities, structured and modified their trip looking

for better prices, for which it is considered that the use of ICT allows travellers greater efficiency in the planning and execution of the trip.

Unlike what was reported by [7], our tourists frequently used ICTs to communicate with friends and family and share their experiences with them, similar to what was reported by [10].

Regarding the Travel Experience, the empirical data shows that the use of ICT was considered as responsible for experiencing new things and different activities or activities that they wanted to do and having a happy trip, in addition to feeling that the destination was safe. This may be because the ICT allows them to discover the destinations to navigate them by themselves and adjust the trip to achieve their objectives. This result is similar to the contribution of [24].

This is one of the most interesting results since it tells us about the behaviour and how a smart tourist, present in regular destinations, could be defined, also showing a visitor who actively participates and is not only a provider of information for the tourism industry.

Regarding the SEM modelling, for the hypothesis the goodness of fit statistics are as follows: the CFI was 0.943 indicating that at least 94.3% of the covariance in the data can be reproduced by the model, the TLI index of 0.932. The RMSEA of 0.093 and the SRMR of 0.034. Based on the goodness-of-fit statistics, hypothesis 1 is verified: the use of technology has a positive relationship and an incremental effect on the experience. With the previously described, the objective of evaluating the effect on the Experience during pleasure trips from the use of smart devices with an internet connection by the tourist is considered fulfilled.

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## 6. References

[1] Agüero García-Prieto, A. M., & González Sánchez, R. (2014). Análisis de la aplicación de la realidad aumentada en el sector turístico: una propuesta de mejora. Gran Tour: Revista de Investigaciones Turísticas, 10, 52–72.

[2] Aníbal, P., Matovelle, T., & Baez, S. (2018). Medición de la experiencia del turista en Quito. Rev. Bras. Pesq. Tur. São Paulo, 12(1), 133–156. https://doi.org/10.7784/rbtur.v12i1.1359

[3] Baltar, F., & Brunet, I. (2012). Social research 2.0: Virtual snowball sampling method using Facebook. Internet Research, 22(1), 57–74. https://doi.org/10.1108/10662241211199960

[4] Buonincontri, P., Morvillo, A., Okumus, F., & Van Niekerk, M. (2017). Managing the experience co-creation process in tourism destinations: Empirical findings from Naples. Tourism Management, 62, 264–277. https://doi.org/10.1016/j.tourman.2017.04.014

[5] Chaney, D., Lunardo, R., & Mencarelli, R. (2018). Consumption Experience : Past , Present And Future. Qualitative Market Research: An International Journal, Emerald, 21(4), 402–420.

[6] Crotti, R., & Misrahi, T. (2017). The Travel & Tourism Competitiveness Index, Travel & Tourism as an Enabler of Inclusive and Sustainable Growth. In Insight Report The Travel & Tourism Competitiveness Report 2017, Paving the way for a more sustainable and inclusive future. World Economic Forum.

[7] Femenia-Serra, F., Perles-Ribes, J. F., & Ivars-Baidal, J. A. (2019). Smart destinations and tech-savvy millennial tourists: hype versus reality. Tourism Review, 74(1), 63–81. https://doi.org/10.1108/TR-02-2018-0018

[8] Gretzel, U., Sigala, M., Xiang, Z., & Koo, C. (2015). Smart tourism: foundations and developments. Springer, 179–188. https://doi.org/10.1007/s12525-015-0196-8

[9] Jiménez, C., & Puente, R. (2007). La investigación de mercados on-line: ¿realmente funciona? DEBATES IESA, XII(2), 20–24. Retrieved from https://www.researchgate.net/publication/311511072

[10] Lemoine, J.-F., & Salvadore, M. (2018). L'impact des usages du smartphone sur l'expérience touristique : le cas de la découverte d'une destination. Management & Avenir, 99(1), 165. https://doi.org/10.3917/mav.099.0165
[11] Li, Y., Hu, C., Huang, C., & Duan, L. (2014). The concept of smart tourism in the context of tourism information services. Tourism Management, 58, 293–300. https://doi.org/10.1016/j.tourman.2016.03.014
[12] Neuhofer, B., Buhalis, D., & Ladkin, A. (2012). Conceptualising technology enhanced destination experiences. Journal of Destination Marketing and Management, 1(1–2), 36–46. https://doi.org/10.1016/j.jdmm.2012.08.001
[13] Neuhofer, B., Buhalis, D., & Ladkin, A. (2015). Technology as a Catalyst of Change: Enablers and Barriers of the Tourist Experience and Their Consequences. In I. Tussyadiah & A. Inversini (Eds.), Information and Communication Technologies in Tourism 2015 (pp. 789–802). Switzerland: Springer International Publishing. https://doi.org/10.1007/978-3-319-14343-9
[14] Orosa, F. J. E., Fernández Pinto, I., & Pérez Sales, P. (2008). Cuestionarios psicológicos e investigación en Internet: Una revisión de la literatura Francisco. Anales de Psicología, 24(1), 150–157. Retrieved from https://revistas.um.es/analesps/article/view/32871/31721
[15] Prebensen, N. K., Woo, E., & Uysal, M. S. (2014). Experience value: antecedents and consequences. Current Issues in Tourism, 17(10), 910–928. Retrieved from https://doi.org/10.1080/13683500.2013.770451
[16] Pulido-Fernández, J. I., & Navarro Hermoso, Ú. (2014). Identification of items to measure the experiences of tourist at destination. Retrieved from www.uesc.br/revistas/culturaeturismo
[17] Quinlan Cutler, S., & Carmichael, B. (2010). The dimensions of the tourist experience. In M. Morgan, P. Lugosi, & J. R. B. Ritchie (Eds.), The Tourism and Leisure Experience: Consumer and Managerial Perspectives (pp. 3–26). Channel View Publications. Retrieved from https://books.google.com.mx/books?id=52ReGta3HDIC&printsec=frontcover&hl=es&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false
[18] Quinlan Cutler, S., Doherty, S., & Carmichael, B. (2018). The experience sampling method: examining its use and potential in tourist experience research. Current Issues in Tourism, 21(9), 1052–1074. https://doi.org/10.1080/13683500.2015.1131670
[19] Raun, J., Ahas, R., & Tiru, M. (2016). Measuring tourism destinations using mobile tracking data. Tourism Management, 57, 202–212. https://doi.org/10.1016/j.tourman.2016.06.006
[20] Rivera Lozano, R. R. (2018). Los atributos funcionales y emotivos de los destinos turísticos, antecedentes de la satisfacción y la lealtad de los turistas. Universidad Anáhuac.
[21] 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. https://doi.org/10.1016/j.tele.2016.10.004
[22] Taquez, H., Rengifo, D., & Mejía, D. (2017). Diseño de un instrumento para evaluar el nivel de uso y apropiación de las TIC en una institución de educación superior. Portal Educativo de las Américas Organización de los Estados Americanos. Retrieved from http://recursos.portaleducoas.org/sites/default/files/5030.pdf
[23] Villagómez, F. O. (2004). Un modelo de medición de valor del cliente : aplicación de ecuaciones estructurales a una empresa de telecomunicaciones mexicana.
[24] Wang, D., Park, S., & Fesenmaier, D. (2012). The Role of Smartphones in Mediating the Touristic Experience. Journal of Travel Research, 51(4), 371–387. https://doi.org/10.1177/0047287511426341
[25] Wang, X., Li, X., Zhen, F., & Zhang, J. (2016). How smart is your tourist attraction?: Measuring tourist preferences of smart tourism attractions via a FCEM-AHP and IPA approach. Tourism Management, 54, 309–320. https://doi.org/10.1016/j.tourman.2015.12.003
[26] World Economic Forum. (2016). Digital Borders, Enabling a secure, seamless and personalized journey. Switzerland.
[27] World Tourism Organization (UNWTO), & European Travel Commission (ETC). (2014). Handbook on E-marketing for Tourism Destinations. Madrid, Spain: World Tourism Organization. Retrieved from https://www.e-unwto.org/doi/book/10.18111/9789284415755

[28] Xiang, Z., Tussyadiah, I., & Buhalis, D. (2015). Smart destinations: Foundations, analytics, and applications. Journal of Destination Marketing and Management, 4(3), 143–144. https://doi.org/10.1016/j.jdmm.2015.07.001
[29] Yoo, C. W., Goo, J., Huang, C. D., Nam, K., & Woo, M. (2017). Improving travel decision support satisfaction with smart tourism technologies: A framework of tourist elaboration likelihood and self-efficacy. Technological Forecasting and Social Change, 123, 330–341. https://doi.org/10.1016/j.techfore.2016.10.071