THE INFLUENCE OF CONTEXT ON PRIVACY CONCERN IN SMART TOURISM DESTINATIONS

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Abstract

A study of existing literature research shows that mobile application development and usage is now an essential aspect of everyday life. The privacy concerns of the users towards the application provided on the mobile devices that make use of their data is still a problem. This study highlights the need for mitigating the privacy concern of the users towards mobile applications used in smart tourism destinations and develops a framework based on the review of previous research and literature. The framework proposed by this study supports the relationship between personal beliefs and the environment, with the moderating effect of use context. This research is empirically driven and discusses the relationships between the study
Introduction

An environment where technology is embedded within the city to improve the people’s quality of life and services efficiency is known as Smart City. The development of Smart City leads to the formation of Smart Tourism Destinations (STD), which was defined by Shafiee, Ghatari, Hasanzadeh, & Jahanyan (2019) as an innovative tourism destination built upon a modern technology infrastructure that encourages sustainable and easily accessible development of tourist areas. The innovation and application of technology have become an integral part of sustainability (Fazal & Wahab 2015) and STD success depends on the interconnected devices from several vendors and service providers, and the risks of information leaked are quite high as the number of interconnected smart objects grows daily. They multiplied by the entanglements involved in different vendors and interoperable systems (Masseno & Santos, 2018). In this case, it has to be in the context that the tourists are well aware of the data privacy ethics of the tourist service providers. Kokolakis (2015), found out that some e-shoppers are ready to give their personal information to e-retailers in return for discount code or something else, irrespective of any privacy concerns. This scenario referred to as a privacy paradox, which can define as an inconsistency between people concerning privacy disclosure and their actual behavior (Gerber, Gerber, & Volkamer, 2018).

Relating the privacy paradox to this study, we can assume that the tourists nowadays may still be willing to be less concerned about their privacy in smart cities as long as the pros outweigh the cons. Researches on smart tourism destinations are few in numbers, and nowadays, governments are highly investing and promoting smart tourist, specifically in Asian nations (Gretzel, Werthner, Koo, & Lamsfus, 2015). Therefore, it is vital to look into privacy concerns, how it influences the behavioral intention of tourists in Smart tourism destinations STD, and we argued that privacy concerns of the tourists could affect their behavioral intentions in smart tourism destinations. The technological context of the smart tourism destination as a technology-centric environment can influence the relationship.

1.1 Smart Devices Concerns in Smart Tourism Destination

The emergence of smart cities globally has had a substantial influence on the tourism sector (Khan, Woo, Nam, & Chathoth, 2017). The principal factor that makes tourism
destinations smart is the use of technology. The use of smartphones by the tourists has become a necessity, and popularly now a standard gadget for tourists on holiday, Shafiee et al., (2019). The authors further stated that STD aims to create a piece of new information supporting structures that will adopt capabilities to enhance smart tourism organization's management processes. The capabilities will also promote innovation, ease services, improve the tourism experience, and enhance the competitiveness of organizations at the tourism destinations. A smart tourism destination is a transition of smart cities where everything is interconnected. As devices are becoming more intelligent in smart cities, online information privacy has become a social concern for many people as they block their personal information on websites and reducing the privilege of mobile applications (Ozdemir, Smith, & Benamati, 2017).

Consequently, the privacy concerns of tourists’ use of smart devices is a vital matter influencing the tourist experience in terms of sustainability, and this negatively influences their behaviors and subsequently affects their satisfaction in the smart environment (González-Reverté, Díaz-Luque, Gomis-López & Morales-Pérez, 2018). The authors further emphasized that privacy risk does have a predominantly negative influence on tourist experience. Furthermore, Tourism is a growing industry that provides economic and social benefits (Abdullahi et al., 2018) STD managers should take the privacy concern problems associated with the mobile devices to use seriously and must be blended into their ethical perspective when marketing a tourist destination. Nevertheless, the STD designed to enrich the tourist experiences and to improve the competitiveness of each destination. Additionally, the tourists at STD can get a brief or full historical place details through smart scanning or augmented reality devices.

Furthermore, location-based services are other benefits of STD, which could give tourists alert to nearby restaurants or stores making promotional sales. Besides, tourists waiting time in highly populated restaurants will be minimized, as they can quickly request for drinks and snacks while waiting for their meal. Additionally, tourist service providers can be aware of customers' special dietary conditions concerning their medical problems, religious restrictions, and any form of restrictions they might have. All the benefits, as mentioned earlier of STD, are only possible if the tourist is to turn-on their smart devices GPS and were less concerned about their privacy. Though privacy concerns are one of the predominant factors affecting tourists to tap into the free resources available in smart tourism destinations, as well as to get information about touristic areas quickly, this paper looks into the use of context to mitigate the privacy concerns of tourists in a smart tourism destination.
2. Literature Review

The smart tourism destination was coined from smart city, which in that it includes the touristic infrastructure and the smart technology infrastructure, and all this together creates a smart tourism ecosystem. Tourists in this destination make use of their smart devices to connect into the available resources of the smart tourism ecosystem and at the same time actively contribute data via their movements, queries, pictures, and videos uploads are also included as primary factors in the smart tourism ecosystem, among other principal factors such as residents, government and media (Gretzel, Reino, Kopera, & Koo, 2015). As everything in connection with technologies do have challenges, so as smart tourism destination who relied on technological infrastructure have various challenges mentioned in the literature like management of the smart destination which includes big data management, web management, infrastructure management, database management, online marketing management, privacy concerns (Van 2016; Choe & Fesenmaier, 2017; Femenia-Serra, 2018). Van (2016) research revealed that the factors influencing people's concerns about privacy in smart tourism destinations are related to the data types involved, data collection and usage purpose, and the individual or organization collecting, using, and managing the data. Privacy concerns were defined as a user's concern in respect of information disclosure (Zhou and Li, 2014). Nowadays, some national bodies and international bodies have started to emphasize on the importance of privacy policy, as they regarded it as one of the 21st-century challenges (Van, 2016). Although this is not an unexpected or astonishing movement, as many users have started realizing the significance of securing their information both online and offline in a territory, they are not familiar. In May 2018, the European Union (EU) implemented the General Data Protection Regulation (GDPR), which addresses data protection and privacy for all EU citizens, foreigners in Eurozone, and the European Economic Area. The regulation also addresses the transfer of personal data outside the EU and EEA areas. Likewise, in the USA, in the e-commerce application setting and websites, several privacy-related rules are stated there, like the Federal Trade Commission (FTC), which has been committing their time and attention to the protection of data privacy (Fortes and Rita, 2016).

Nevertheless, it was revealed that data privacy is one of the significant concerns in mobile applications as many grant privileges without reading it. Since organizations could collect personal information, it could be stored for future usage by them (Okazaki et al., 2012). Kokolakis (2017), also revealed that mobile applications (app) users who wish not to share their personal information eventually uninstall the application, when they noticed that the app is collecting their personal information. Liu & Liu (2016) also analyzed the relationship between
smart cities and smart tourism, and their research results revealed that lack of sound security mechanism, lack of universal standard, inadequate relevant law, and lack of cooperation are among the challenges smart tourism destination are facing. Additionally, the health sector in smart cities have the most significant type of critical infrastructure and if it's prone to security threats, it may lead to patients privacy concerns and also pose threats to their life as the critical information can be exposed by the attackers (Ijaz et al., 2016). Therefore, tourists are not only concerned about their smartphone, which is a principal component of the Internet of Things (IoT) infrastructure in smart cities but also concerns about the environment in which they are using it, what they do with it and how they behave. As emphasized by Jung & Park (2018), privacy concerns affect the coping behavior of customers, and when they found out an organization gives their information to the third party without their consent, and they might stop using the company services or reporting the organizations for improper practices. Van (2016) proposed a framework to identify what kind of privacy concerns the use of smart technologies and of data produce may raise among tourists in smart cities, as people perceive particular data as personal or impersonal, and that their concerns differ according to the purpose for which data is collected and used. The author categorized the four areas of privacy concerns emerge that range from hardly any (impersonal data & service purpose) to incredibly high (personal data & surveillance purpose). Hence, by identifying tourist's privacy concerns with specific technologies and data practices will help smart tourism destinations set a policy on new developments that will accommodate the concerns of the tourist, beyond the bare legal necessities (Van, 2016).

Behavioral intention is defined as the willingness to visit a destination, purchase a product, and use of services as intended by the tourist (Chen, Shang, & Li, 2014). Prior studies have found out that higher positive products review, overall destination image or comments by the people via social platforms do affect the behavioral intention of the tourists (Park & Lee, 2008; Chen, Shang, & Li, 2014; Jung & Park, 2018; Sharma & Naya, 2018). Therefore, in the era of smart tourism destinations, as tourists perceived that the use of smart devices in smart cities could lead to privacy violation, this might affects that behavioral intention. Based on this assertions, we proposed that:

**Proposition 1:** Privacy concerns of tourists negatively affect their behavioral intention towards mobile application in a smart tourism destination.

*Moderating Role of Use Context*
Context is a fundamental concept in information system research (Kim, Chang, Chong, & Park, 2019), but with its importance, there is no consensus in the literature about its definition (Lui & Li, 2011). Context has been conceptualized as information that composes of behavior relating to the interrelationship of people, their environment, and the technology they use (Dey, 2001). Also, the study on context has argued that the definition of context composes of the different types of contexts that can exist with humans and any technology application. That is the context of the situation that influences a user to use a technology (Barnard, Yi, Jacko, & Sears, 2007). Use context “refers to various environments in which ubiquitous computing is used, which include physical, social, temporal, task definition, and antecedent states” (Belk, 1975) Furthermore, Van de Wijngaert & Bouwman (2009) defined use context as” the very concrete environment in which a technology is going to be used.” The study on use context have been specifically targeted towards mobile technology, as mobile technology have become a device that users carry with them everywhere they go (Zhou, 2012), which makes the context of use with mobile application very dynamic (Chang, 2015), as the situation that would require a user to use a location-based application when they are sitting at home would be different from what would make them use a location application when they are in a train station or are lost as suggested by Perry et al. (2001) or the situation that would make a police officer adoption mobile service usage during an emergency compared to when there is no emergency (Bouwan et al., 2008). Use context has been studied to be positively related to the behavioral intention of mobile application gaming adoption (Liu & Li, 2011). Also, Yang, Lu, Gupta, & Cao, (2012) argued that use context influences a user to use mobile internet, and found use context to be positively related to behavioral intentions towards mobile internet., also use context have been studied to be positively related to adoption intentions of mobile application (Lui & Yi, 2017), use context have also been studied to positively influence use intention of mobile ticketing (Mallat, Rossi, Tuunainen, & Ööri, 2009), furthermore use context have been studied to moderate the relationship between social value and perceived value (Chang, 2015). While the study on the ease of use, benefit, and usefulness considered only the utilitarian value of technology, use context considers advantages under different circumstances (Kim et al., 2015; 2019). Both personal and environmental factors play a role in use context perceived benefit and usefulness. For example, a tourist during a trip while traveling might be bored and be motivated to use different mobile application, and also location-based services that they might have not to use if they were not in that physical location or environment (Yang et al., 2012). Also, the fact that technology is used all through in a smart tourism destination is another context the tourist would
consider when using a mobile application, especially when they know that the only option they have to get a service available to them is via a mobile technology, or using their location-based information, they have less privacy concern, with the understanding of why their information is being collected. González-Reverté et al., (2018) found out that privacy risk had a significant negative impact on the tourist experience, and using location-based services one of the most popular applications available on mobile technology is a significant concern for users (Hong et al., 2015), and also a concern for service providers in destinations as they want the users to use the application, but the privacy concern that the users have towards providing their information to service provider is a challenge, in the privacy paradox domain, where users considers the benefit of using the mobile application, and this can reduce their privacy concern, but there is no consensus both in the literature, and in the industry about the benefit of personalization in mitigating privacy concern which is why it is still a paradox (Lee & Rha, 2016), this study proposes not just the personalization benefit, but also the environmental factor can influence and mitigate the privacy concern of a user towards a mobile application behavioral intention. That is intention to use and also recommend to others, thereby while privacy concern can be negatively related to user’s mobile application services behavioral intention, the use context would influence the relationship such that the adverse relation would be reduced based on the context of use of mobile application in a smart tourism destination; therefore, we propose that.

**Proposition 2:** Use context moderated the negative relationship between privacy concern and behavioral intention of (MALBS)

![Conceptual Model](image-url)

**Figure 1: Conceptual Model**
3. Discussions and Conclusions

Nowadays, the use of technology by tourists has changed from the previous use of laptops and desktop from their home, or work, to the use of mobile device which they carry everywhere, tourist now use their mobile device to book hotels, flights and make general travel plans, they also use their mobile device with them while on a trip (Ozturk, Nusair, Okumus, & Singh, 2017). Privacy concern of mobile application services has continued to be a challenge for both research and industry, the developers of mobile application keeps coming up with better ways to get the users to use the technology, and turn on their location-based application; also the service providers, need the users to trust them to provide and manage their location information, different domains and business makes use of mobile application, and there is a need to get the users to use the application, reduce their privacy concern of service providers, and recommend the technology to others. This paper reviews privacy concerns, behavioral intention, and use context, of mobile application among tourists in a smart tourism destination, and develop propositions that are testable. The use of information communication technology cannot be avoided by the tourism domain for different purposes (Yuan, Tseng, & Ho, 2019), making that there are different factors that influence the privacy concern of users towards mobile technology. The proposition for this study suggests that first the privacy concern a tourist would have towards a mobile application would negatively reflect on their behavioral intention towards the destination and the mobile application, second building on the previous proposition, and the extant literature, this study proposes that the context of use of the mobile application by the tourist would reduce their privacy concern, when users use technology under different social (benefit) and environmental (smart destination) context, it also influences how they perceive the technology and the concern for data or information violation. This study while focusing on privacy concern with use context in smart tourism destination, it is not without limitations, one of the major limitations of this study is that empirical research was not conducted, either qualitatively or quantitatively data was not analyzed, this makes the discussion of this study not generalizable, the study focus majorly on extant literature to back up the propositions, the limitations also gives room for future research. The framework proposed in this study highlights very important and interesting points for future studies to expand on, the introduction of use context in the mitigation of privacy concern, empirical data should be collected. The use of mobile application should be further studied as much as perceived ease of use and usefulness have been previously studied, the social cognitive theory supports the interrelationship proposed in this study, future research can also test the propositions of this study to further improve on the
literature on mobile application privacy concern, not just towards behavioral intentions, but also the impact of privacy concern towards adoption intention, usage intention, and the role use context can play in the inter role between technology, people and their environment.

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