JTOS Journal of Tourism Sustainability
Available online at: https://jtos.polban.ac.id/index.php/jtospolban
Journal of Tourism Sustainability
Volume 2 Nomor 1, 2022:19-30
DOI: 10.35313/jtospolban.v2i1.30

Predicting Tourists' Behaviour Towards Smart Tourism: The Case in Emerging Smart Destinations

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Abstract
This paper aims to investigate the tourist behaviour towards smart tourism in the case of emerging smart destinations. The extended model of theory of planned behaviour (TPB) is proposed as a tool to predict the relationship between applying smart tourism technology and tourist behaviour in selecting and visiting the destination. Using the city of Bandung, Indonesia as a case study, data was collected using a structured questionnaire from 524 domestic tourists in several emerging smart destinations. The confirmatory factor analysis was utilised to test the construct validity and reliability of the model, while Partial Least Squares (PLS) modelling was employed to assess the hypotheses developed. The results show that the extended TPB model can reasonably predict the tourist behaviour towards smart tourism, suggesting its applicability to emerging smart destinations. Smart tourism technology directly affects tourists' attitude, subjective norms, and tourists perceived behavioural control, resulting in their travel intention. Also, their planned behaviour mediates the relationship between smart tourism technology and tourist decision in selecting and visiting destinations. Identifying predictors of tourist behaviour towards smart tourism provides a more accurate forecast of tourist demand, thereby enabling policymakers to tailor and implement a more comprehensive smart tourism planning and development.

Keywords: Smart Tourism, Theory of Planned Behaviour, Smart Destinations.

INTRODUCTION

Technological developments have increased competition among tourist destinations. The concept of smart tourism becomes a significant competitive advantage of a tourist destination (Buhalis and Amaranggana, 2015). The added value offered from tourist attractions that apply this concept can be one determining aspect by potential tourists in choosing a destination (Paul et al., 2019). Driven by technological innovation, smart tourism provides facilities and services that make it easier for tourists to find information, make transactions, and gain maximum experience while visiting tourist attractions (Ghaderi et al., 2018b). This condition is also in line with changes in tourist visiting behaviour that is increasingly dependent on smart devices (Filieri et al., 2015). Technology adaptation to smart tourism is attractive to tourists who want the speed of service, leisure travel, and exciting experiences through the application of technology in tourist attractions (Demir et al., 2014).

Investigation of tourist behaviour is essential for tourism development. In fact, the technology in a tourist attraction is also closely related to changes in tourist behaviour in the era of information and communication technology. Theory of Planned Behaviour (TPB) can be a reference in examining tourist behaviour. TPB predicts the occurrence of specific actions that individuals want to do, for example, in their travel intention based on personal and social factors towards attitudes, subjective norms, and perceived behavioural control (Ghaderi et al., 2018a, Han et al., 2010). Previous research has explained the importance of technology in tourist attractions (Ghaderi et al., 2018a, Buonincontri and Micera, 2016, Jeong and Shin, 2019), but studies of its relationship to tourist behaviour are still limited. Moreover, there has been no adequate research in smart tourism studies that focuses on developing cities with emerging smart destinations.

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This research fills this gap by emphasizing the case of emerging smart destination, while highlighting the important aspects of tourists' behaviour towards smart tourism.

This research was conducted in Bandung, Indonesia, for three reasons. First, Bandung is developing into a smart destination. Several aspects of development, such as infrastructure, public services, and disaster mitigation, have begun to apply the smart concept (OECD, 2016), including the management of tourist attractions. Secondly, foreign and domestic tourist visitation to Bandung increases every year, reaching 7 million tourists in 2019. Thirdly, the index of technology use, especially the Internet in Bandung, Indonesia, reached 4.4 of 5, which illustrates that the number of technology users is relatively high (BPS, 2018), knowing that it is essential for smart tourism success.. With these considerations, the city of Bandung is fit to predict tourist behaviour towards smart tourism as a case of developing cities with emerging smart destinations.

LITERATURE REVIEW

Smart Tourism

The rapid advancement of technology has made the term "smart" quite popular in recent years (Caragliu et al., 2011). Today, the smart concept has been presented to many sectors, including education, health services, city planning, infrastructure construction, and public safety, to promote sustainable development, increase economic growth, and enhance the quality of life (Hall, 2000). Tourism is one of the economic sectors that have continuously adapted to technological innovation (Gretzel, 2011). The technological adaptation to tourism transforms the industries engaged in it and significantly changes the behaviour of the tourists (Buhalis and Law, 2008). Shortly, the tourism industry will continue to grow and develop with the proliferation of smart devices applied in many activities in tourism sectors (Koo et al., 2013).

Travel and tourism have become the sectors that most often experience changes along with technological advances (Del Chiappa and Baggio, 2015). The application of information and communication technology in the tourism sector makes activities and services at tourist attractions develop towards smart concept-based tourism. (Wang et al., 2016) stated that the idea of smart tourism reflects the tourism industry's response to a broader vision of making the world "smarter" – a global initiative to create a more installed, interconnected and smarter system through information technology to address some of the world's pressing problems and achieve socio-economic growth. In the realm of tourism, many governments and destination management organizations (DMOs) around the world have committed to promoting smart tourism in the form of policies and regulations. Tourists are encouraged, even needed, to integrate smart technology into their destination development (Buhalis and Amaranggana, 2014). From a sustainable development perspective, tourist attractions need to adopt technology and be competent, innovative, and consider the environment in their operations for sustainable development. In response to this challenge, building a smart tourist attraction has been included in the agenda of stakeholders, policy makers and investors in tourism destinations.

Technology in Smart Tourism

Smart tourism is basically the development of a logical evolution from traditional tourism and electronic tourism (e-tourism) which is based on technology-based innovation. Previously, e-tourism emphasized the provision of technology as tourism intermediaries (Buhalis, 2002). The difference with smart tourism is that a tourist attraction is said to be "smart" not only because it uses technology intensively, but also aims to gain a deeper understanding of the characteristics and meaning of human mobility (Lamsfus et al., 2015). So that the focus of smart tourism is more than just providing technology facilities/devices at tourist attractions, but using this information and communication technology to support real-time data production, automatic utility systems, and digital communication devices, with the aim of creating activities and services at tourist attractions more effective and interconnected (Huang X et al., 2012). In the end, the goal of smart tourism is for tourists to get easy services and interesting experiences during their visit.

In practice, there are three forms of information and communication technology that are very important for preparing smart tourism, namely cloud computing, the Internet of Things (IoT), and internet-based service systems for end-users (Zhang et al., 2012). With cloud computing technology, information can be stored and accessed through a reliable web platform that provides a centralized management, visibility, and control. In the application of IoT, the chip embedded in the entrance ticket, for example, allows tourism service providers to track the location of visitors and their consumption behaviour so that it is useful in attraction management to monitor the spatial and time movements of tourists and control the flow of tourists directly. Likewise, the traveller recommendations through internet-based applications such as TripAdvisor, Google Reviews, and

other travel discussion forums influence tourists' decisions about various aspects of their trip, such as the selection of tourist destinations, accommodations and tourist objects to visit (Filieri et al., 2015, Pantano et al., 2017, Xiang et al., 2015). The examples above show that both tourism providers and tourists themselves feel the benefits of smart tourism application.

Wang et al. (2016) developed smart tourism technology by using tourist preferences of technology on tourist attractions. These technologies include smart information systems, intelligent tourism management, smart sightseeing, e-commerce systems, smart safety, intelligent traffic, smart forecasts, and virtual tourist attractions. However, the study has not touched on the relationship and its effect on tourist behaviour. The tourists' visiting process to an attraction faces various possibilities at each stage and is influenced by many factors (Pantano et al., 2017). Thus, it is important to investigate the influence of smart tourism towards this process through tourist behavioural factors.

Theory of Planned Behaviour

Understanding tourist behaviour patterns is useful for tourism policymakers and planners. It provides a more accurate forecast of tourist demand, thereby enabling tourist destinations to tailor their product offerings to match tourist expectations, retain existing tourists, and attract new tourists (Demir et al., 2014). The tourism product is an experience; contains all service characteristics (i.e., intangible, variable, inseparable, and perishable). Thus, it is challenging to evaluate tourism products before buying or visiting a destination. Consequently, tourism-related decision making requires extensive information during the information-seeking phase of the decision (Paul et al., 2019). However, several factors can influence tourist behaviour in the destination selection process, such as psychological contracts (Xiang et al., 2015), culture, and national characteristics (Swarbrooke and Horner, 2007). Essential components of destinations such as accessibility, attractions, accommodation, amenities also play an indispensable role in the process (Ivars-Baidal et al., 2017). Travel experiences, photos, videos, and other content shared on social media can also influence other potential tourists' destination selection decisions (Paul et al., 2019). It illustrates that tourists' behaviour in choosing and visiting tourist destinations is influenced by internal factors such as tourist psychology and external factors such as information technology.

Theory of Planned Behaviour (TPB) is the basis for investigating the influence of tourist behaviour caused by internal factors (Ghaderi et al., 2018a, Khadijah, 2019, Filimonau and Perez, 2019). Developed from Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1970), TPB adds tourist attitudes and subjective norms as two additional non-volitional variables in addition to perceived behavioural control that influences one's intentions (AL Ziadat, 2015, Cao et al., 2019). Attitudes are expressed as evaluating behaviour of the positive or negative opinions. Subjective norms are the social pressure a person feels about whether to engage in usage behaviour based on judgments from references (peers, family, and environment). Perceived behavioural control is the perception that a person can obtain related resources.

In general, Ajzen (1991) explain that the better the subjective norms and attitude towards behaviour, the stronger the perceived behavioural control, the greater the individual's intention to carry out the desired behaviour. The relative importance of subjective norms, attitudes, and perceived behavioural control in predicting expected intention varies across situations and behaviours. Thus, in some cases, it can be found that attitude and supportive subjective norms have a substantial contribution to engage in the behaviour, but only when perceived behavioural control is sufficiently strong that forms a solid intention to do so. Meanwhile, in other applications, it was found that the three predictors made independent influences.

H1. Tourist attitude significantly influences travel intention

H2. Tourist perceived behavioural control significantly influences travel intention

H3. Tourist beliefs and subjective norms significantly influence travel intention

H4. Travel intention significantly influences selecting and visiting smart destinations

The Role of Smart Tourism Technology

Smart tourism technology is more than just a facility; but creating a "value proposition" from technological developments for tourists. Several new trends in tourist behaviour are driven by the development of information technology, such as accessing information via the Internet, seeking better off services, asking for more specific offers, and becoming more knowledgeable, mobile, critical, and price-sensitive (Sevrani and Elmazi, 2008). The technology in smart tourism allows destinations to be "smart" in generating real-time resources about the needs and desires of tourists so that they can respond directly to them. Smart tourism technology's main objective is to utilize systems to optimize the tourism experience, increase the effectiveness

of resource management, and maximize tourist satisfaction and competitiveness of tourist attractions (Buhalis and Amaranggana, 2015). Thus, as the target consumer of this tourist attraction, tourists must always be the benchmark in designing smart tourism technology.

Concerning the Theory of Planned Behaviour (TPB), many studies have included additional variables into the basic TPB model and built extensions of the TPB model (ETPB model) to broaden the theory and increase the predictive power of a travel behaviour (Cao et al., 2019, Hu et al., 2019, Park et al., 2017). The variables studied in the tourism context include the distance of tourist destinations (Cao et al., 2019), visits to world heritage sites (Halpenny et al., 2018), the image of destinations and travel obstacles (Park et al., 2017), mountain tourism areas(Hu et al., 2019), medical tourism (Seow et al., 2017), and smart tourism (Ghaderi et al., 2018a). In this study, the smart tourism technology variable is implicitly needed as the main factor in visiting a destination. To fully reveal the effect of smart tourism technology on destination choices, this study builds a TPB model by including the smart tourism technology variable as an extension as shown in Figure 1. It positions smart tourism technology as the primary independent variable and the basic construction of the theory of planned behaviour (attitudes, subjective norms, and perceived behaviour control) as the three pre-driving independent variables. Smart tourism technology was introduced as an independent variable to explore its effects and mechanisms in the tourist destination decision-making process. As discussed later, it can directly influence travel intentions and play an essential role in selecting and visiting a destination.

H5. Smart tourism technology has a significant effect in selecting and visiting tourist destinations

H6. Smart tourism technology has a significant effect on tourist attitudes

H7. Smart tourism technology significantly affects the behaviour control perceived by tourists

H8. Smart tourism technology significantly influences subjective norms

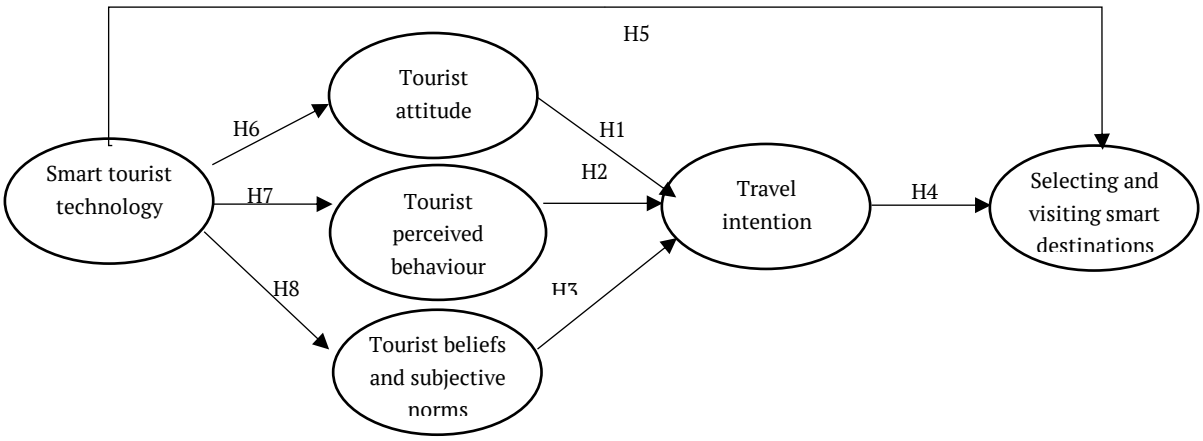

Figure 1. Extended Model of Theory of Planned Behaviour in Smart Tourism

Case Study: Bandung as Emerging Smart Destination

The city of Bandung is a geographical area on a former ancient lake that has been administratively developed since the Dutch colonial period in the early 1800s. The city has developed into the largest metropolitan area in West Java Indonesia with 2.5 million people with the main economic activities in trade, services, and tourism. The complexity of Bandung as a metropolitan city encourages the application of the smart city concept, which the government initiated in 2013. The city's transformation has made Bandung a Top 50 Smart City Government by Eden Strategy Singapore. Supported by solid technology infrastructure and human resources, Bandung Smart City has the vision to manage various city resources effectively and efficiently through innovative, integrated, and sustainable solutions.

Bandung has developed a smart city cluster in the form of smart governance, smart branding, smart economy, smart living, smart society, smart environment, and smart city evaluation. Smart governance is manifested in efforts to migrate public services from manual systems to automation and data-based systems. Online applications (web-based and mobile app-based) are used as operational platforms to improve service

quality and government bureaucracy. Smart branding was developed through the image of Bandung as a modern business and tourism city and changes in the visual design and architecture of public buildings. The smart economy is manifested in managing the creative economy ecosystem, encouraging a cashless society/digital transaction, and improving people's welfare through e-commerce. Smart living is developed by improving the viability and quality of life, health services, and transportation modes. Smart society is realized through the development of information literacy to suppress social disparities so that every citizen of Bandung City can interact seamlessly through technology. To support these goals, the Bandung City government has established partnerships with state-owned enterprises/private corporations to provide wi-fi networks in mosques, churches, and residential area with Customer Social Responsibility (CSR) funds.

In the tourism sector, Bandung smart city has impacted the development of smart tourism in this region. Bandung, which has a typology of urban tourism, has a high adaptation to changes in tourists' behaviour that need smart tourism services. The availability of network infrastructure, industrial ecosystems, and regulatory support are favourable factors for Bandung tourism. The growth of smartphone users in Indonesia has encouraged the considerable use of online travel agent services, hotel providers, and transportation services in Bandung, which multiplier changes the accommodation, transportation, and tourist attraction business models. The big data tourism market has enabled tourism business owners to increase efficiency, create new products and services and make smarter business decisions.

The application of smart technology can be seen from the massive use of online booking services through the online travel agencies (OTA) network, hotel websites, the use of smart locks on hotel room doors, and QR code facilities on the ordering menu at hotel restaurants. The presence of online food delivery services, which are very popular with Indonesian tourists, has changed the policy on the prohibition of "bringing food from outside" in hotels in Bandung. At first, this online food delivery service was considered a threat to hotel revenue streams in Bandung. However, with pressure in the form of negative reviews on the web hotel rating given by the customer, the hotel is finally open and friendly to online food delivery services. Furthermore, this reality has prompted many budget hotels to rationalize the prices of the food they provide in-hotels to compete with online food for their guests.

The significant number of online transportations in collaboration with financial technology (fintech) services and digital transactions have also provided a radical change to the travel patterns of tourists in the city of Bandung. Tourist travel arrangements have become more flexible and scalable to no longer rely on mainstream itineraries published by tour operators. With the use of technology, tourists are interested in exploring new destinations that have never existed in previous eras. It is believed that the growth of tourist attractions, accommodations, and cafes/restaurants in remote areas of Bandung is primarily driven by the expansion of tourist travel activities in Bandung.

The use of big data and the internet of things has changed tourism small and medium enterprises (SME) actors in Bandung. The results of the FGD with tourism stakeholders in Bandung in 2021 show that the tourism SMEs in Bandung are currently very aware of the importance of digital literacy, especially regarding customer data management promotion, social media, and electronic transactions. It is seen in the high interest of Bandung tourism SME actors to take part in business digitization training, implementing fintech-based transactions, search engine optimization, and targeted advertising strategies on social media. This progress has significantly made it easier for tourists to access tourist products and services in Bandung.

Changes in the business model in the supply side of Bandung's tourism, which is becoming smarter, have encouraged Bandung tourists' behaviour. For millennial tourists, smart tourism in Bandung allows this segment to travel longer and cheaper. As for baby boomers, smart tourism in the city of Bandung has provided much comfort, especially regarding queue certainty, transaction security, and ease of access. Overall, smart tourism in Bandung encourages a significant increase in tourist visits to the city and optimizes the distribution of profits and benefits for tourism stakeholders. The government and tourism stakeholders expect the application of smart technology can support the sustainability of tourism in Bandung as an emerging smart destination.

METHODS

In this study, we tried to understand how smart tourism technology affects smart destination selection determined by the theory of planned behaviour. The measurement items were adopted from previous literature and modified for this study. The research framework is presented in Figure 1. Twenty-seven statement items of eight variables in smart tourism technology, six items measure tourist attitude, four items measure tourist

perceived behavioural control, three items measure tourist beliefs and subjective norms, three items measure travel intention, three items measure selecting and visiting smart destinations. The smart tourism technology attribute was adapted from (Wang et al., 2019) in measuring the tourist preferences of the smart tourism technology. The theory of planned behaviour was adapted from (Ajzen, 1991). Then, the attributes of visit intention and visiting tourism destinations are adapted from (Ghaderi et al., 2018a). We use multi-measurement items to prevent measurement errors. All items of this study were measured on a 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). The survey was written in English and then translated into Indonesian by researchers who are fluent in both languages.

This study uses a quantitative approach. Data were analysed using partial least squares-structural equation modelling (PLS-SEM) (Hair et al., 2014). Partial least squares were employed to analyse measurement models and structural test models. The sample is Indonesian domestic tourists with a total of 524 respondents from a total of 600 responses obtained.

Descriptive statistical analysis was used to analyse the demographic characteristics of the respondents. Based on the distribution of questionnaires to respondents, 524 questionnaires can be used for data analysis. Forty percent of respondents were men, and 60% of respondents were women. Then, based on the level of education, it is known: 28% are high school graduates, 37% have a bachelor's degree, and 35% have a master/doctoral degree. Based on income per month known: 37% respondents have income < IDR 2,000,000, 32% respondents have an income > IDR 2,000,000. - 5,000,000. - then, 31% income > IDR 5,000 .000, -. Based on the type of work, 31% of respondents are students, 44% are civil servants, 10% are private company employees, and only 5% are entrepreneurs. Then, as much as 1% are state-company employees, and 9% rest is outside the specified group. These results illustrate that the respondents in this study had a distribution of the amount spread across each group of characteristics, and none were dominant in certain groups.

RESULT AND ANALYSIS

A two-stage process related to measurement and structural components is conducted by PLS-SEM analysis in assessing the theoretical model. First, an initial test to eradicate the size of each construct that cannot explain satisfactory variance in the construct. Second, Confirmatory Factor analysis is performed to check the model fit, validity, and reliability of the model, and common method bias. Hypotheses are tested by variance-based Structural Equation Model (SEM) (Hair et al., 2017).

Measurement Model

To test the measurement model, convergent and discriminant validity tests were conducted. According to (Chin, 1998), to assess convergent validity, the values of composite reliability and Cronbach'α for each construct should be higher than 0.7. Besides, the values of the average variance extracted (AVE) should be higher than the recommended threshold of 0.5 (Hair et al., 2017). As explained earlier, six reflective constructs are used in the measurement model (smart tourism technology, tourist attitudes, perceived behavioural control, subjective beliefs and norms, travel intentions, and selection of smart destinations) in addition to the two main criteria for composite reliability (CR) and average variant extracted (AVE).

Table 1: Loading, Composite Reliability (CR), and AVE

Variable	Measure	Factor loading	Cronbach alpha	CR	AVE
Smart tourism technology	**Smart information system**		0.971	0.973	0.570
	1. Tourist attraction home page	0,752			
	2. Electronic touch screen	0,747			
	3. Quick-response code	0,757			
	4. Mobile application	0,797			
	5. Online information access	0,762			
	6. Free Wi-Fi	0,743			
	Intelligent tourism management				
	1. Smart education	0,719			
	2. Crowd handling	0,754			

Variable	Measure	Factor loading	Cronbach alpha	CR	AVE
	3. Tourist-flow monitoring	0,716			
	4. Electronic-entrance guard system	0,781			
	5. Smart card (band)	0,795			
	Smart sightseeing	0,797			
	1. E-tour map	0,793			
	2. E-tourism-recommendation system	0,737			
	3. Personal-itinerary design	0,702			
	E-commerce system	0,733			
	1. Online booking	0,746			
	2. Online coupons				
	3. Mobile payment	0,742			
	Smart safety	0,757			
	1. Smart emergency-response system	0,747			
	2. Travel-safety protection	0,733			
	3. Intelligent-environment monitoring	0,766			
	Intelligent traffic	0,744			
	1. Real-time traffic broadcast	0,745			
	2. Smart vehicle-scheduling	0,777			
	Smart forecast				
	1. Weather forecast	0,792			
	2. Queuing time forecast	0,743			
	3. Tourist-flow forecast				
	Virtual tourist attraction				
	1. Virtual travel community				
	2. Virtual tourism experience				
Tourist attitude	1. I better plan my trip with the use of websites, smart phones, etc.	0,838	0.890	0.915	0.644
	2. Traveling seems easier than before when I use websites, smart phones, etc.	0,833			
	3. My attitude in visiting this destination is influenced by the existence of smart infrastructure	0,879			
	4. Smart phones, websites, etc, can be accessed easily	0,809			
	5. It is important for me when a tourism destination has smart facilities such as tour guide devices	0,738			
	6. Providing smart facilities should be a priority for every tourism destination.	0,705			
Tourist perceived behaviour control	1. Informing friends and relatives about where I am is important for me by using mobile phones.	0,812	0.870	0.911	0.718
	2. I really care about my traveling behaviour as I use smart facilities and friends will follow me up	0,833			
		0,871			
		0,872			

Variable	Measure	Factor loading	Cronbach alpha	CR	AVE
	3. I can use smart devices and I am confident in using it.				
	4. I have resources, time, and opportunities to use smart devices				
Tourist beliefs and subjective norms	1. Most people who are important to me think I should use smart apps for my trip	0,891	0.834	0.900	0.750
	2. My family encourage me to use smart technologies for this trip	0,854			
	3. People whose opinions I value would expect that I use smart apps for my trip	0,852			
Travel intention	1. Safety and security issues influences my intention in visiting a destination	0,803	0.829	0.898	0.747
	2. I want to go to destinations with more smart facilities for my future travels	0,891			
	3. I will make an effort to visit smart destinations when traveling	0,895			
Selecting and visiting smart destinations	1. Smart destinations have more to offer compared to traditional destinations, hence I get more experiences and fun	0,924	0.858	0.913	0.778
	2. I will select smart destinations for future trips	0,893			
	3. Smart destinations are better than traditional ones	0,826			

Table 1 shows the results of a valid loading factor that is above 0.7; the indicators can be used in the research model. Then the next stage is testing the structural model by including all indicators that have passed the validity and reliability tests. To demonstrate discriminant validity, the square root of each construct's AVE should be higher than the correlation of the construct with other latent variables (Fornell and Larcker, 1981). In addition, cross-loadings of all the items were tested, and the results show each within-construct item loading is higher on the measured construct than the cross-loadings on the other items, this indicates the discriminant validity of the measurement model is accepted (Chin, 1998).

Table 2: Discriminant validity

	STT	TA	TPBC	TBSN	TI	SVSD
STT	0.755					
TA	0.362	0.803				
TPBC	0.343	0.444	0.847			
TBSN	0.379	0.358	0.669	0.866		
TI	0.443	0.485	0.743	0.663	0.864	
SVSD	0.682	0.563	0.521	0.541	0.650	0.882

Notes. STT: smart tourism technology; TA: tourist attitude; TPBC: Tourist perceived behavioural control; TBSN: Tourist beliefs and subjective norms; TI: Travel intention; SVSD: Selecting and visiting smart destinations.

Discriminant validity is checked by a (Fornell and Larcker, 1981) method. In this method, comparing the square root of Average Variance Explained (AVE) of each construct with the variance between constructs and if the

square root of AVE is greater than the variance between constructs, then the researcher can state discriminant validity between constructs. Table 2 shows that discriminant validity in the model, the square root of AVE of each construct is greater than the shared variance between the constructs. It can be said that discriminant validity is good.

Model Structure

In analysing the structural model (inner model), two recommended criteria of the significance of the path coefficient and the value of R^2 are applied (Hair et al., 2017). R^2 sizes of 0.75, 0.50, and 0.25 for all endogenous structures, respectively, are substantial, moderate, and weak. The next step is to examine the direct effect between variables in table 3. The structural model test shows the relationship of latent variables with other latent variables. This study finds a significant direct effect between the predictors (smart tourism technology, tourist attitudes, perceived behavioural control, subjective beliefs and norms, and travel intentions) on selecting and visiting smart destinations.

Table 3: The result of hypotheses testing and variable effectt

	Direct		Indirect		Total	
Variables	**Path Coefficient**	**T Statistics**	**Path Coefficient**	**T Statistics**	**Path Coefficient**	**T Statistics**
TA – TI	0.172	4.026*				
TPBC – TI	0.479	8.023*				
TBSN – TI	0.281	4.479*				
TI – SVSD	0.432	10.671*				
STT – SVSD	0.491	11.114*	0.144	6.680*	0.635	17.169*
STT – TA	0.362	7.046*				
STT – TPBC	0.343	7.161*				
STT – TBSN	0.379	8.433*				

Notes: Significance *0.01. STA: smart tourism technology; TA: tourist attitude; TPBC: Tourist perceived behavioural control; TBSN: Tourist beliefs and subjective norms; TI: Travel intention; SVSD: Selecting and visiting smart destinations.

Based on the results of the direct effect test, it shows that travel intention is significantly influenced by tourist attitude (β = 0.172; t = 4.026), tourist perceived behavioural control (β = 0.479; t = 8,023), tourist belief and subjective norm (β = 0.281; t = 4,479). Furthermore, travel intention has a significant effect on the selection of smart destinations (β = 0.432; t = 10,671). Then, smart tourism technology has a significant effect on tourist attitude (β = 0.362; t = 7.046), tourist perceived behavioural control (β = 0.343; t = 7.161), tourist belief and subjective norm (β = 0.379; t = 8.433). Smart tourism technology also has a direct influence on the selection of smart destinations (β = 0.491; t = 11,114) and indirect effects (β = 0.144; t = 6,680) and the total effect (β = 0.635; t = 17,169). These results illustrate that the smart tourism technology significantly influences the selection of smart destinations directly or indirectly through other variables in the TPB.

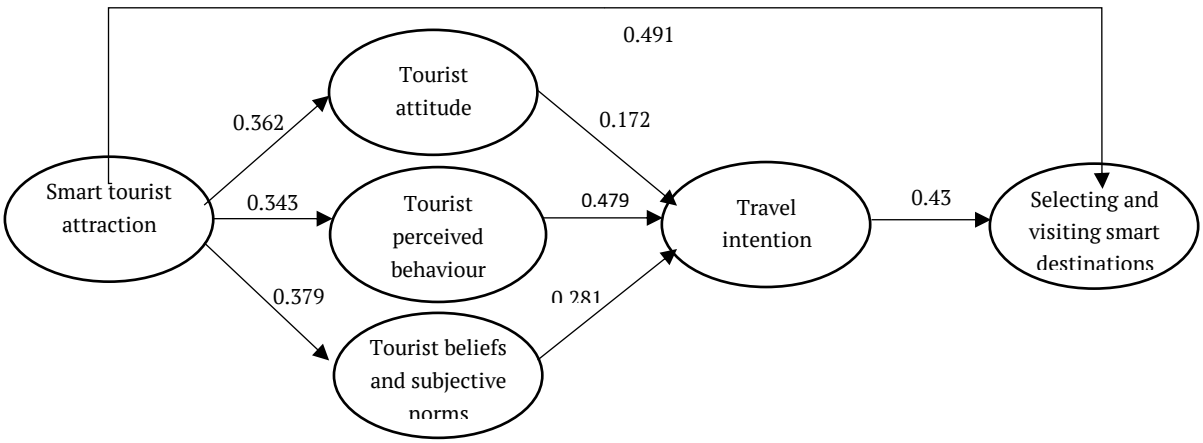

Figure 2. Model Result

Discussion

This research has investigated the validity of an extended TPB model within the context of smart tourism. The findings revealed that the extended TPB model can reasonably predict the tourist behaviour towards smart tourism, suggesting its applicability to the emerging smart destinations. This study offers useful insights into the theoretical investigation and practical development of smart tourism technology and has attempted to explain the interactions and effects of critical behavioural factors such as attitude, behavioural control, and subjective beliefs and norms.

The variables on TPB have a significant effect on tourist intentions. The attitude of tourists towards smart tourism is revealed as the most influential travel intention predictor than the other variables. It is in line with a study from Seow et al. (2017) that describes attitudes as the most significant consideration in affecting tourist intention to travel. Because tourists' intention to select and visit smart destinations primarily depended on personal attitudinal factors rather than normative beliefs, the destination managers in the emerging smart destinations should make their marketing efforts toward attitudinal factors (e.g., promoting the ease and comfort obtained using smart technology in the attraction). Likewise, although results found that tourists' subjective beliefs and norms have a more minor but still positive impact on travel intentions, destination managers should not ignore the effect of significant others on travel intention to select and visit destinations. The role of referral groups in shaping attitudes and behaviour was observed by other researchers (Hu et al., 2019) who noted that the influence of subjective norms on tourists' intentions shows that extensive referrals (e.g., from family, classmates, friends, and colleagues) can increase tourist behaviour intentions. Meanwhile, results found perceived behavioural control to have the lowest effect on travel intention. It is in line with research (Halpenny et al., 2018) that perceived behavioural control is the weakest predictor of travel intention. In emerging smart destinations, it may happen as the perceived behavioural control is not sufficiently strong that a tourist is limited to obtain related smart tourism technology resources. The results also show that tourists' intention has a significant effect on destination selection, which is in line with research by (Ghaderi et al., 2018a). Overall, the findings support the argument that the variables on TPB play an essential role in influencing tourists' intentions in choosing and visiting tourist destinations.

The results reveal that smart tourism technology has a significant effect on the variables at TPB. It shows that smart tourism technology features are essential in influencing tourists' intention to visit tourist destinations. These include smart information systems, intelligent tourism management, smart sightseeing, e-commerce systems, smart safety, intelligent traffic, smart forecasting, and virtual tourist attractions (Wang et al., 2016). The results reveal that the development of information technology in smart tourism has helped change attitudes, behaviour control, beliefs, subjective norms, and tourists' intention to visit tourist attractions. Moreover, it can also interpret that tourist in developing tourism destinations in this era have shown a significant change in needs and behaviour patterns from tourists in the pre-Internet/social media era. It is in line with the empirical condition in the case study that tourists are becoming more explorative in visiting destinations. Moreover, the tourists’ attitudes towards the speed and convenience of obtaining services right at their fingertips are more visible in this era. This change also brings challenges to the tourism industry, especially developing tourist destinations, and calls for the development of smart tourism technology in line with tourist behaviour. The features that are indicators of smart tourism technology in this study can also be a reference or input for developing technology in tourist destinations.

The results reveal that smart tourism technology has a significant effect on destination selection. It is in line with the empirical condition in the case study that there was a substantial surge in visitation when destinations applied the smart tourism technology effectively in tourist attraction, accommodation, and other tourist amenities. It is also because tourists are looking for suitable facilities and services to enhance their travel experience (Ghaderi et al., 2018a). Thus, tourists' evaluation of smart tourism technology must always be the starting point when designing smart destinations as it will affect the choice of tourist destinations. In the context of smart destinations that are still developing, planning based on tourists' wants and needs and their evaluation towards smart tourism can become a reliable and focused foundation for further destination development.

CONLUSIONS

This study has found the impact of smart tourism technology on tourist behaviour in choosing and visiting tourist attractions and their relationship with TPB. Smart tourism technology was found to affect attitudes significantly, perceived behavioural control, beliefs, and subjective norms of tourists, influencing their intention to choose and visit tourist attractions. More than that, this model is an appropriate model to explain the smart tourism technology that is the background for tourist behaviour to visit smart destinations. Finally, this model also indirectly affects smart tourism technology on tourist behaviour in choosing and visiting tourist attractions.

Theoretically, this study has proposed and empirically tested a research model that describes tourist visits to smart destinations by using partial least squares - structural equation modelling. These results indicate that TPB can help predict and understand tourist behaviour related to smart tourism's growing phenomenon. This theory has been applied successfully in a broad spectrum of tourism research (Cao et al., 2019, Hu et al., 2019, Park et al., 2017). Furthermore, by focusing on emerging smart tourism destinations, this research also contributes to the expansion of tourism studies, especially in smart tourism. The research results can be used as lessons learned for tourist destinations that have similar conditions and problems to be able to predict the behaviour of their targeted tourists and input for the development of tourism in the future.

Identifying the essential predictors of tourist intentions at smart destinations, governments and managers of tourist attractions can implement a more comprehensive and targeted tourism plan to encourage better perceptions of potential tourists. In addition to the application of smart tourism technology, a collaboration between tourists, tourism service providers, and the government must provide excellent and consistent service quality to build a good perception of the smart destinations that are being developed. Also, joint efforts are required between the ministry of tourism and tourist attractions to update existing facilities at tourist attractions continuously. Some of the features that are indicators of smart tourism technology can be used as a reference or input for developing tourist destinations to create superior smart destinations.

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